“EFFEECTIVENESS OF HOMOEOPATHIC CONSTITUTIONAL MEDICINE IN IMPROVING GROWTH STANDARDS IN CHILDREN WITH REFERENCE TO WHO & IAP –PAEDIATRIC GROWTH CHART”

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IN

PAEDIATRICS

By

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UNDER THE GUIDANCE OF

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SUBMITTED TO

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2019

ENDORSEMENT BY THE HEAD OF THE DEPARTMENT AND THE INSTITUTION

This is to certify that the Dissertation entitled **"EFFECTIVENESS OF HOMOEOPATHIC CONSTITUTIONAL MEDICINE IN IMPROVING GROWTH STANDARDS IN CHILDREN WITH REFERENCE TO WHO & IAP – PAEDIATRIC GROWTH CHART"** is a bonafide work carried out by **Dr. CHINCHU G.S** a student of MD (Hom.) in **DEPARTMENT OF PAEDIATRICS** in the **SARADA KRISHNA HOMOEOPATHIC MEDICAL COLLEGE** under the supervision and guidance of **Prof. Dr. C.K. MOHAN MD (Hom.), Dept. of Paediatrics** in partial fulfilment of the Regulations for the award of the Degree of **DOCTOR OF MEDICINE (HOMOEOPATHY)** in **PAEDIATRICS.** This work confirms to the standards prescribed by THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI.

This has not been submitted in full or part for the award of any degree or diploma from any University.

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DECLARATION

I, **Dr. CHINCHU G. S** do hereby declare that this Dissertation entitled**" EFFECTIVENESS OF HOMOEOPATHIC CONSTITUTIONAL MEDICINE IN IMPROVING GROWTH STANDARDS IN CHILDREN WITH REFERENCE TO WHO & IAP-PAEDIATRIC GROWTH CHART"** is a bonafide work carried out by me under the direct supervision and guidance of **DR. C.K. MOHAN, M.D (Hom.)** Prof., Dept. of Paediatrics, in partial fulfilment of the Regulations for the award of degree of **Doctor of Medicine(Homoeopathy)** in **PAEDIATRICS** of The Tamil Nadu Dr. M.G.R Medical University, Chennai. This has not been submitted in full or part for the award of any degree or diploma from any University.

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ABSTRACT

BACKGROUND

Poor growth is an adaptation to chronic low energy intake and stunting is a measure of cumulative impact of chronic energy deficiency on linear growth. These become a common problem around the world. A child that lacks proper nutrition first stops grow in height. The lack of nutrition is prolonged the child starts losing weight too.

Wasting refers to low weight in relation to a child's height, reflecting acute under nutrition. Stunting refers to the deficiency in height in relation to age, reflecting chronic under nutrition.[8]

India is in an economic and nutrition transition and hence growth pattern of Indian children has changed over last few years. In India 20% of children under five years of age suffer from underweight. 43% among them are underweight and 48% among them are stunted due to chronic malnutrition.[5,6]

Researchers in Britain say, warning that those who are too thin may face a greater threat to their health than those who are too fat [7].

AIMS AND OBJECTIVES

- To know the effectiveness of homoeopathic constitutional medicine in improving growth standard in children
- To understand the common co morbid complaints with underweight children

METHODS AND MATERIAL

Cases of low growth standard were identified from Sarada Krishna OPD's and rural centres of Sarada Krishna Rural Centres ,then the screening test was done to find out the poorly growing children. 30 cases were selected according to their growth percentile recorded asper the WHO and IAP combined growth chart.

The cases were given with constitutional medication according to their constitutional totality, then these cases followed for every 6 month. On each visit children adviced with a common nutrious diet, with a restriction of out side fatty foods .

Height and Weight were recorded on every visit, and the values recorded and statistical analysis was done using paired t test.

RESULT

Homoeopathic constitutional medicine are effective in treating low growth in children especially children with a normal height lacking weight, due to some underlying disease causes . Lycopodium is one of the best medicine in improving the growth in children.

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LIST OF ABBREVIATIONS USED

SL. NO.	ABBREVIATION	EXPANSION
1.	%	Percentage
2.	<	Aggravation
3.	>	Amelioration
4	Wt	Weight
5.	D	Dose
6.	Dr	Doctor
7.	F	Female child
8.	M	Male child
9.	H/O	History of
10	Ht	Height
11.	No.	Number
12.	OPD	Outpatient department
13.	IPD	In patient department
14.	SL	SaccharumLactis
16.	yrs	Years
17.	wks	Weeks
18.	C/O	Care of
19.	Kgs	Kilograms

20.	i.e.,	That is
21.	eg.	Example
22.	R	Regular
23.	NR	Nothing Relevant
24.	^{0}	Degree Celsius
25.	Σ	Sum
26.	m	Meter
27.	§	Aphorism
28.	DD	Developmental delay
29.	BF	Before
30.	AF	After
31.	Sl.No.	Serial Number

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1.1 **INTRODUCTION**

When a chlid grows normally, it become active in body, intensly curious in mind & seeks a good relation with the surrounding. But a poor growth in child making it as inactive, and develops poor growth potentials. Such children are essential to moniter properly.[1]

Homoeopathic system having a different concept while treating with the patient, it is based on the underlying principles and the prescription is done using the totality of symptom selected after a proper repertorisation. The medicine selected using the constitutional basis.

As mentioned in aphorism 5, we have to consider the physical constitution of a patient, especially when the disease is chronic. A child whether he is obese, or thin is determined by the genetic code of the individual. Hence the physical constitution should never be neglected while arrive at a similimum. Distribution of fat, progress of emaciation and eating habit are important to determining the physical constitution.[2] In addition with the physical constitution mental make of the child is essential for the understanding of constitution.

The term growth refers to increase in the physical size of the body.[3] That means increase in the weight and height of the body proportionately. In 1993 the World Health Organization (WHO) undertook a comprehensive review of the uses and interpretation of anthropometric references. In the year 2006, WHO had published combined Height and weight chart as the latest growth standard chart for age group 0-18, which was reproduced after evaluation by Indian Academy of Pediatrics in 2015, this was taken as the structured tool for assessment in this research.[4]

According to Paediatricians , both stunting and wasting are the most prevalent form of under nutrition .Poor breast feeding ,insufficient complimentary food availability under national schemes are the reasons behind this .

Poor growth is an adaptation to chronic low energy intake and stunting is a measure of cumulative impact of chronic energy deficiency on linear growth.This become a common problem around the world.

Treatment for poor growth are given by many systems of medicine nowadays, but most of them gave unsatisfactory results than the expected out come. So this study, will be useful in understanding the progress made by homoeopathic constitutional medicine in wasted and stunted children to increase their growth .

1.2 **BACKGROUND AND JUSTIFICATION FOR THE STUDY:**

- India is in an economic and nutrition transition and hence growth pattern of Indian children has changed over last few years. In India 20% of children under five years of age suffer from underweight due to malnutrition. 43% among them are underweight and 48% among them are stunted due to chronic malnutrition.Among this group, certain levels are contributed by constitutional problems like poor eating habits, behavioral problems, genetic issues which can be effectively met through Homoeopathic constitutional treatment.[5,6]
- Researchers in Britain says, warning that those who are too thin may face a greater threat to their health than those who are too fat. It adds that, underweight children are more affected with osteoporotic changes, cardiovascular problems and their immune power will be relatively low.[7]
- Wasting refers to low weight in relation to a child's height ,reflecting acute under nutrition.Stunting refers to the deficiency in height in relation to age , reflecting chronic under nutrition.[8]
- A majority of districts across India are severly malnourished, According to the NFHS-4 (2015-16) data most of these districts are in southern states and TAMILNADU is one of them.[9]
- 37 per cent of our under-five children are underweight, 39 per cent are stunted (low height-for-age), 21 per cent are wasted (low weight-for-height) and 8 per cent are severely acutely malnourished,"This is said by WHO study. While the percentage of stunted children under five reduced

from 48% in(2005-06) to 39% in 2015-16, the percentage of children who are wasted increased slightly from 19.8% to 21%, according to the report.[3]

- Global Nutrition Report 2017 shows that India is under the burden of malnutrition. According to the report, about 21 percent of children under five in India are 'wasted' or 'severely wasted'. This means that they do not weight enough for their height. Globally, the number of children who are wasted is 52 million.[10]
- There is a lack of infrastructure in Anganwadicentres, with regard to supply's and trained staff. They supply food in very unhygienic condition because they are untrained. Girls are getting marry early ,and give birth to undernourished children .Repeated diarrhea from unhygienic conditions cause more malnutrition.[10]

1.3 SCOPE OF THE STUDY

Poor Growth is an hidden disease in the society. Many children in India especially in southern districts suffer from poor growth which leads to children affected with chronic severe illness, such children shows poor mental abilities, causing they can't achieve higher qualifications. Such children are threat for the developing countries like India. So this study is useful to understand the children lacking growth and the effectiveness of homoeopathy in improving the growth standard.

2.0 AIMS AND OBJECTIVES

- To know the effectiveness of homoeopathic constitutional medicine in improving growth standard in children
- To understand the common co morbid complaints with underweight children

3.0 REVIEW OF LITERATURE

3.1DEFINITION

Growth denotes an increase in size of an individual due to increase in the number and diameter of the cells.[11] The process of growth is a continuous phenomenon starting from conception till maturity. Growth is a mirror of the child's well being. It is therefore crucially important to study normal & abnormal growth patterns.[12]Growth standard measure the child's average weight and height. Wasting refers to low weight in relation to a child's height, Stunting refers to the low height in relation to age.[8,13]

3.2THE ENDOCRINOLOGY OF GROWTH[12]

Hormones play a significant part in regulating growth in children .The endocrine influences in growth are mediated by growth hormone(GH), thyroxine, cortisol, gonadal steroids, insulin and growth factors, chiefly insulin like growth factor1 (IGF-1)and insulin like growth factor 11(IGF11).

Growth Hormone (GH)

GH is the most abundant hormone in the human pituitary and plays an important role in controlling postnatal growth. GH influences on growth become increasingly important through mid childhood and critically so in puberty. In infancy,endogenous GH levels are high and the child is thought to be relatively resistant to the effects of GH on tissues. Growth hormone ceases when age advances. GH helps for bone mineral accretion and stabilizing the metabolic milieu.

The major actions of GH are either direct or indirect .It is postulated that GH acts on the growth plate to promote longitudinal growth.Here it works on conjunction with IGH-I, which is partly secreted from the liver and also produced locally at the growth plate. The growth promoting actions of GH at the tissue level and indirect anabolic effects are mediated by IGF-1. These include cell proliferation and protein synthesis in both skeleton and extra skeletal tissues. A number of these actions are insulin like and are opposed by cortisol.

Thyroid hormones

Fetal thyroxine may not play a significant role in the early development of human fetus.At this time maternal thyroxine is sufficient to sustain fetal growth. Children with thyroid deficiency who are not treated with proper medication suffer from growth failure severely. The thyroid hormones appear to modulate the organisation and maturation of cells in the growth plate. Thyroid gland plays an important role in maintaining somatic growth in infancy and beyond.

Insulin

Insulin is an anabolic hormone and bears homology to the other growth promoting hormone IGF-1. Insulin can bind to IGF-1 receptor,which itself resembles the insulin receptor. High levels of Insulin lower the levels of IGF-binding proteins,there by potentiating the action of IGF-1. Clinical correlates such as the infant of diabetic mother and beckwith Weidemann syndrome,suggest that insulin aids growth.

Glucocorticoids

Glucocorticoids act directly on the growth plate to inhibit cell differentiation and clonal expansion.They do not suppress GH secretion from the pituitary gland. Endogenous cortisol that is secreted in moderate amounts does not interfere with the cell biology of growth plate. Larger amounts such as that in inhaled preparations of beclomethasone or fluticasone,may have growth restrictive effects. In larger doses of corticosteroid administration, the canalization potential of the tissue is lost, which means that little catch up growth is possible.

Gonadal Steroids

Testosterone and its active metabolite dihydrotestosterone are potent anabolic agents that promote linear growth and weight gain. GH is essential for the effective promotion of somatic growth by androgens. Androgens in turn appear to enhance GH pituitary GH secretion.GH is said to act as a “cogonadotrophin” in the pubertal process .The synchrony of the growth and gonadal activation are key features in the timing of growth and pubertal maturation. In condition that constitutional delay of growth and puberty

(CDGP),a small dose of testosterone (in boys)will activate the pituitary to release GH and gonadotrophins.

Oestrogens have growth promoting effects in small doses but the net effect is to cause fusion of the epiphysis and there for halt further growth. Oestrogen in small doses are important to start the menarche process in girls.

Other growth factors

There are a number of growth factors that may enhance the growth process.They act like traditional hormones through specific receptors, share similar physiological regulatory processes and use common signal transduction mechanisms. Although broadly called the epidermal growth factor (EGF) family,not all peptides which belong to this group have growth promoting effects.

3.3 NORMAL GROWTH[1]

Growth refers to increase in size, anatomical structural,measured in such parametres as height, weight, and headcircumference & bone age.

Development refers to increase in complexity in both structure & function.

Birth weight and normal growth[12]

Birth weight is the single most important factor which influences the outcome of a birth in term of survival, growth & development. The incidence of low birth weight is around 30% and less than 50% among them are premature. Low birth weight causes high mortality, poor physical growth, impairment of cognitive functions and intellectual development & even late adulthood diseases such as diabetes and coronary artery disease.

Birth weight is influenzed by heredity, pregravid maternal weight, height ,maternal nutrition, birth order and successive pregnancies, pregnancy complications & their management & the fetal factor like multiple geastation ,gestational age ,congenital malformations & so forth.

Nutrition & Normal Growth

It is universally known and accepted that providing adequate nutrition to a child from birth to adulthood hold the key to attainment of normal growth .

The inadequate nutrition does not result from purity of nutrients but largely due to ignorance, beliefs,lack of knowledge & unawareness about what constitute normal eating habits.

Thus delay in initiating breastfeeding, or introduction of weaning food,dilution of milk being the only suitable infant nutrition,ignorance regarding quantity & balanced diet are examples which lead to malnutrition with resultant poor growth .

Infections & normal growth

Infections such as diarrhea, ARI, measles, typhoid,tuberculosis, UTI, are common diseases which children suffers more.The child survival & state motherhood and such programme are beginning to make an impact, but still infections are too frequent, Poor sanitation, lack of safe drinking water,poor education are other dominant contributing factors to this problem.

3.4 LOW GROWTH STANDARD

children have the history of:[14]

- Child related: H/o neonatal jaundice,Behavioral problem of child ,disorders of appetite.
- Parent related:Reaction of parent to pregnancy, Child mother relation/affection, Mother depressed& drug addict, too young mother,Signs of child abuse :multiple bruises ,multiple fractures at different stages of healing,Signs of physical neglect –dirty un neat nails , skin infections ,diaper rash , alopecia ,flat occiput.

Family History:[15,16]Absent mother, poverty, Illiteracy, unemployed parents.

Causes of low growth standard:[11,14,17–24]

- Genetics: If both parents are slim then genetics place a role in their low weight gain.[21,25]

- Pre natal:Small for age at birth (called intra uterine growth restriction), pre maturity, pre natal infection; birth defects; exposure to medication/toxins that limit growth during pregnancy(eg: anticonvulsants, alcohol, tobacco smoke, caffine, street drugs)
- Organic causes:

a)Inadequate food intake[26]

secondary to chronic illness, Inability to suck, incorrect formula preparation, breast feeding problem, poor feeding interactions,vitamin deficiencies.

b)Failure to assimilate: Digestive diseases(GERD)or Inflammatory bowel diseases along with defect in food absorption:

-In most severe cases, low BMI child displays obvious symptoms such as chronic vomiting or diarrhea. In other cases child refuses to eat normal quantities because he experiences heartburn or bowel pain after eating.Regurgitation (GERD ,hiatus hernia ,rumination syndrome)

- intestinal parasites

-mal digestion, malabsorption (cystic fibrosis, celiac disease, schwachmann-diamond syndrome, chronic diarrhea).

c)Failure to utilize:

Due to Renal insufficiency(renal failure, glomerulonephritis, nephrotic syndrome, hydronephrosis), Hypercalcemia, Hepatic insufficiency, Diabetes mellitus, Diabetes insipidus

d)Reduced growth potential: Chromosomal disorders, Pituitary dysfunction, Gonadal dysgenesis, Skeletal dysplasia

e)Elevated metabolic rate:

Due to chronic infection (tuberculosis , HIV , mycotic disease ,intra uterine infections-rubella ,syphilis), Malignancies, Hyperthyroidism, Immuno deficiency, Burns

- Eating disorders: Paediatric eating disorders have significant role in recent decades. The serious mental illnesses,which tend to have their onset during the preteen years,can trigger children to diet excessively,significantly limit their food intake or self-induce vomiting after a meal. Anorexia nervosa

- Behavioural issues: Picky eaters, food aversions, parent/child control issues, attention problem, hyperactivity, poor mother child interaction
- Decreased appetite: Drink large amount of low calorie liquids or fruit juices.Drinking these cause prevent the child from eating solid foods ,which contain more calories. Painful mouth also cause child to refuse to take food.(problem with swallowing or chewing ,dental carries)
- Increased losses of nutrients through stool, urine or vomit, due to:,celiac diseases, chronic liver disease, cystic fibrosis ,infection(eg: gigardiasis), pancreatitis, protein sensitivity, Renal tubular acidosis,short gut syndrome.
- Non organic or environmental causes: unwanted child, illegitimacy, female child,too many children. Psychologically disturbed mother ,child abuse, poor feeding technique,unusual maternal nutritional beliefs, absent father,illiteracy.
- Endocrine[17]: Hyper thyroidisum can cause child to become underweight.Child unusually nervous or irritable,and a physical examination will reveal a rapid heartbeat.
- Chronic lung diseases.
- Economical:Insufficient food due to increased food prices especially child born in a poor families.[16]

3.5THE STUDY OF GROWTH[12]

One may divide the relatively long period of various phases are:

1. Intra uterine growth, ie,growth from conception till parturition,or antenatal growth .
2. Growth in infancy in the first post natal year
3. Growth between 1-5 years of age (toddler an preschool)
4. Growth in the prepubertal school going age (up until adolescence)
5. Adolescent growth spurt (during puberty)

However such divisions are somewhat artificial and do not necessarily reflect the beginings or ends of distinct epochs of growth. Although broadly a continous process, growth occurs in spurts in the post natal period of life.

1.Infantile growth spurt (0-1 years)

2.Mid-growth spurt(6-8 years)

3.Adolescent growth spurt

In the first year of life,the child has maximal growth velocity, considering greater than that achieved later in puberty. This Period of growth is mostly dependent on nutrition factors.

Assessment of Physical growth[1,12,25,27–30]

Serial Measurement of weight, height & head circumference are of great value in young children. They should be plotted on a centile chart. Actual measurements run parallel to the centiles.

Weight is more commonly used than height as a criterion of growth. Height or length in an infant,is of equal importance to weight but considering harder to measure and therefore less accurate. It has the advantage that child cannot 'lose weight'.

For prognosis of adult height, a bone age measurement is necessary.

Growth does not proceed regularly and uniformly for the first 18 months of life there is period of intense growth. From 18 months to 11 years growth occur more slowly,about 5-6cm/year.

Growth standards vary according to different countries. Hence the assessment using table is differ in every countries. Even though international centile charts values are important because of serial measurement, and they can also be used to relate weight & height to each other in assessment of nutritional state.

Growth can be measured in terms of :

1.Physical anthropometry(Weight, Height, circumference of head, chest, abdomen & Pelvis.

2.Assessment of tissue growth(skin fold thickness and measurement of muscle mass)

3.Bone age(radiological by appearance and fusion of various epiphyseal centres)

4.Dental age(by counting the number of erupted teeth)

5.Biochemical and histological means.

Physical anthropometry

Physical anthropometry should be done in every child from till maturity at regular intervals. Measurements should be done accurately and it must recorded, so as to allow us on subsequent visit, to ascertain whether the child has grown optimally. The measurements should preferably be done by the same person on calibrated checked equipment to avoid personal human errors.

Weight

Normal birth weight is 2.5-3kg. An infant normally gains 25-30 grams per day till 3 months,then doubles by 5 months,triples by one year and becomes four times his/her birth weight by 2 years. The weighing scales best suited are those, which are designed on balance arm principle, Accuracy upto 0.1kg is acceptable.

Weight calculated according to age is known as,Weech's formula[28]

For 1 year of age=(Age in months +9)÷2

For (1-6 years)=(Age×2)+8

For(7-12 years)=((Age×7)-5)÷2

Length

Until 24 or 36 months of age, length in recumbency measured using an infantometer. The length is recorded in centimetres upto one decimal point.

Height

After the age of 12 yrs, standing height is recorded by stadiometer .For recording stature(height), the subject should remove his/her socks & shoe and & stand perfectly

straight together. Before measurement starts, gentle pressure may be applied over the spine with one hand while the other hand holds the anthropometric rod.

Gain in height[28]

- 25cm in the first year of life.
- 12.5cm in 2nd year(gained half of what gained in the first year)
- Beyond 2 year of age child gains 6cm per year.
- Height of achild beyond 1 year of age=(age×6)+77cm(weech's formula)

Body Circumferences

Head circumference is measured using non-stretchable tape like a steel tape or fiber glass tape.Tailor's tape is not acceptable because of its stretchability.At birth it is about 34cm and increases at 2 monthly increments of 4+3+2+1+1+1.[28]

Upper arm circumference can be measured both in flexed & extended positions and also either at the maximum circumference of biceps muscle or midpoint.

Chest circumference for boys, prepubertal girls and men can be recorded at the level of nipples during normal breathing. It is recorded to the nearest 0.1cm.

Age Independent Anthropometry.

Mid Arm circumference

As the Mid Arm Circumference is relatively constant between 16.5cm and 17.5cm in 1-5years of age,the measurement may be considered as an age independent variable up to 5 years of age. Any child whose Mid Arm Circumference is less than 12.5cm up to 5 years of age, is considered malnourished.

Weight for height

The degree of wasting can be measured by comparing the child's weight with expected weight for a healthy child of the same height. Combinations of these measurements have been used to distinguish different types of malnutrition. In chronic malnutrition the child is stunted with the weight, for age and height for age being low. In acute

malnutrition,height for age is normal but weight for age is low. In nutritional dwarf the weight/height is equal; the child may pass off as anormal child of lower age if the chronological age is not known.

Mid arm/Head circumference ratio

It is a simple & useful criteria for detection of malnutrition. A ratio 0.280-0.314 indicates early malnutrition,0.250-0.279 moderate & less than 0.249 denotes severe malnutrition.

Quetlet's Index: It is based on the relationship between weight & height & is expressed as weight(kg/height(cm) ×100.

Normal value varies from 0.14 to 0.16. It is quite reliable ratio for assessing malnutrition.

Mid-upper arm/Height ratio

It is also a very good indicator of nutritional status. A ratio of less than 0.29 indicates gross malnutrition.

Body Mass Index, BMI=weight(kg)÷height(m)^2

BMI is similar to quetlet's except that the values are SI units. BMI values can be used to draw standardized percentile curves in children and adolescents. It is especially useful for defining obesity. BMI values above 95thpercentile for age are usually used to define obesity.

Ponderal Index, PI=Height(cm)÷cube root of body weight(kg)

Ponderal Index(PI) is similar to BMI and used in defining newborn with intrauterine growth retardation.

Tissue growth

This measurement is done for special purposes and is not used in routine clinical practice. It is measured with a special caliper & skinfold caliper.

Triceps skinfold thickness

The skinfold is picked up over the posterior surface of the triceps muscle, 1cm above the mark on a vertical line passing upward between bony point identified for taking measurement, maintaining a pressure of 10g/mm^2on the caliper and freeing the skinfold the underlying muscle with left hand between thumb, index & middle finger & holding caliper with the other hand. The reading is recorded to the nearest 0.1mm, maintaining pressure of caliper as before.

Biceps skinfold thickness

For recording biceps, the child is made to stand erect, facing the observer with arm on side & palm facing upward. The skinfold is picked-up over the belly of biceps & 1 cm above the line marked for the upper arm circumference & triceps skinfold on a vertical line joining antecubital fossa to the head of humerus. The caliper is applied at the marked level and reading is recorded to 0.1mm.

Bone age or skeletal maturity

Appearance & fusion of various epiphyseal centers follow a definite sequence related to chronological age from birth to maturity. Radiological examination of left wrist & elbow is usually considered for bone age assessment. X-ray of the lower end of femur and talus is used for the assessment of maturity of newborn babies. The details of appearance and fusion of various centers are given in subsequent sections.

3.6CONCEPT OF PERCENTILES

While expressing the growth, the term percentile or centile is often used. In children,the parameters of growth generally used is weigth, height(or length in infants)and head and chest circumferances. These chracteristics are measured and compared with the referance standards. This may be explained in a simple way of example the height of hundred 1 year old normal children is not exactly the same. They are arranged in such a way that the shortest is number 1 and the tallest is number 100. Rows of children are thus made. The mean of each number is worked out. The child at number 1 is 1 percentile, number 10 is 10^{th} percentile, and number 50 is 50^{th} percentile and so on. The 50^{th} percentile is the

median value and is also termed the standard value. Accepted range for normal is between 3rd percentile and 97th percentile.

Percentiles refer to the percentage of individuals falling below a particular level.that is 3 percent of children below the 3rd percentile, and a further 3 percent above the 97th percentile. The remaining 94 percent of individuals who fall between these two lines is considering as normal.[31] Percentile approaching 50th one is devoid of under weight, according to the degree of percentiles it is divided as 3-10,10-25,25-50,50-75,75-90,90-97.On increase with the grade growth standard also improved.

3.7GROWTH CHART : [4,12,25,27,29,31]

Growth chart is the most important tool in assessment of growth of an individual child. A standard chart contains weight for age, height for age and weight for height. The head circumference is included for first 3 years of life The deplict mean, ± SD or percentile values at each age.

The first growth monitoring chart was designed by David Morley.[28]

Growth charts are an essential component of the pediatric toolkit. Their value resides in helping to determine the degree to which physiological needs for growth and development are met during the important childhood period.

The origin of the WHO Child Growth Standards dates back to the early 1990s when a group of experts was appointed to conduct a meticulous evaluation of the National Center for Health Statistics/World Health Organization (NCHS/WHO) growth reference that had been recommended for international use since the late 1970s (WHO, 1995). It included growth reference, which had been recommended for international use.

But, it did not adequately represent early childhood growth and thus keeping this as objective, WHO undertook the Multicentre Growth Reference Study (MGRS) between 1997 and 2003 to generate new curves for assessing the growth and development of children, all over the world. The outcome of which, presented the first set of WHO Child Growth Standards (i.e. length/height-for-age, weight for-age, weight-for-length, weight-for-height and body mass index (BMI)-for-age) and describes the methodical process

followed in their development. There were significant skewness of the WHO sample's weight-for-age and weight-for-height when calculated for distributions below and above the median for height and weight indicators, therefore it was undertook by the concerned countries based on their standards. Indian Academy of Pediatrics, developed our own growth standard chart for Indian children.

IAP is the largest and most representative association of Pediatricians in India developed in the year 1963, affiliated to International Pediatric Association.

Growth charts consist of a set of curves for infants, birth to 36 months of age, and a set for children and adolescents, 2 to 20 years of age. The infant growth charts consist of curves for weight-for-age, recumbent length-for-age, head circumference-for-age, and weight-for-recumbent length. The growth charts for children and adolescents include weight-for age, stature-for-age, and body mass index (BMI)-for-age. In addition, weight-for-stature charts were created for children between 77 and 121 cm in stature that are applicable primarily to children 2 to 5 years of age.

The physical examination included measurements of recumbent length, stature, weight, and head circumference. Head circumference and recumbent length were measured in children younger than 4 years, and stature was measured in children 2 years and older.

3.8SIGNS & SYMPTOMS:[18]

- Emaciation
- Weakness
- Dizziness
- Lack of concentration
- Low body weight
- BMI >18.5
- Vulnerable to infection
- Loss of menstruation

3.9 RISK FOR POOR GROWTH STANDARDS IN CHILDREN:[16,22,32–34]

- Children those are comes under poor growth standards are at high risk for malnutrition ,and it can cause infertility or delayed menstruation further.
- It can also result in fatigue, irritability ,and a lack of concentration ,as well as impairing the body's ability to thermo regulate itself .Due to decreased immune response, underweight children are less resistant to infections and diseases. Protein deficiency ,along with a low BMI and malnutrition ,is associated with reduced white blood cell production and antibody response to virus .
- Bone loss: When the child don't consume enough Calcium ,body uses calcium from bones for functioning .Additionally ,malnutrition reduces levels of the hormone responsible for bone building .It leads to increased change of osteoporosis, a disease of bones that leads to an increased risk of fractures.
- Underweight children are likely to be less fit and active, which increases their cardiovascular risk . Some children are at risk for cardiovascular abnormalities , such as mitral valve prolapse, arrhythmias and heart failure . Regular heart rhythm depends on a proper balance of minerals such as potassium , sodium and calcium inside and outside of the heart muscle cells .
- Iron –deficiency anaemia

3.10 INVESTIGATION[14,18]

Investigations are done only when history & physical examination points towards some organic pathology.

-Hb/CBC/ESR

-urine routine , microscopy ,culture

-stool routine(H.pylori ,giardia),Microscopy ,PH,& other (HIV , Tuberculosis , hepatitis panel)

-X-ray chest

-Mantoux test

-Serum electrolytes

-LFT

-T_3,T_4,TSH

-kidney ,liver & pancreatic function tests(electrolytes,BUN,Creatine,Glusose,calcium,phosphorus,magnesium ,albumin ,total protein ,liver enzymes ,amylase ,lipase)

-Upper gastro intestinal imaging series ,endoscopic studies and biopsies.

3.11 NUTRITIONAL VALUE[28]

'Holiday Segar Formula' is used for to calculating daily nutrient requirements:

RDA(recommended daily allowance) is calculated for the age of the child and hence ideally expected weight and not the present weight must be taken to calculate RDA calories.

Up to 10 kg: 100cal/kg/day

10-20 kg: 1000 cal for each kg above 10 kg

>20 Kg: 1500 cal+20 cal for each kg above 20 kg

That means 1 year age child normally have a weight 0f 10 kg and the must intake 100 cal/kg/day.

3.12TREATMENT:[14,18,24]

Treatment starts with a thorough & careful investigation to define exact problem. At the end of case taking, if the poor growth is due to malnutrition then provide the child with adequate nutrition, but if the child is lack weight even with proper nutrition then the child should need proper homoeopathic medication, that means constitutional treatment is needed.

Homoeopathic approach[35]

Homoeopathy is based on individualization of the patient. The totality of symptoms in the mental and physical plane and peculiar characteristic symptoms help in finding the similimum. Dr. Hahnemann in 153: More importance is given to the characteristics which

is defined as the morestriking, singular, uncommon, peculiar, signs and symptoms which help in finding out a similimum

As mentioned in aphorism 5, we have to consider the physical constirution of a patient, especially when the disease is chronic. A child whether he is obese, or thin determined by the genetic code of the individual. Hence the physical constitution should never be neglected while arrive for the similimum.

Some homoeopathic medicines which are important for improving the growth standard are mentioned below:[24,36]

1.Emaciated children(especially downwards):

- Calcarea Carbonica
- Calcarea Phosphorica
- Lycopodium
- Natrum Mur
- Psorinum
- Sanicula
- Sarasaparilla
- Silicea
- Iodum

2.Emaciation spreading upwards

- Abrotanum
- Argentum Nitricum

3.Intolerance of milk

- China
- Arsenicum
- Ferrum

4.Fat intolerance

- Pulsatilla
- Natrum Phos

4.0 MATERIALS AND METHODS

STUDY SETTING

A sample of 30 cases diagnosed with low growth standards including weight and height visiting the OPD, IPD and Rural centers of Sarada Krishna Homoeopathic Medical College**.**

SELECTION OF SAMPLES

- Sample Size - 30 cases.
- Sampling Technique –Purposive Sampling.

INCLUSION CRITERIA

- Age groups between 2-18 years.
- Both sexes.
- Samples are selected based on weight & height and the initial marking on growth chart (It is considered only if it is less than the standard percentile then only selected)

EXCLUSION CRITERIA

- Children suffering from other severe systemic diseases.
- Children having normal weight and overweight will be excluded
- Age group below 2 years and above 18years will be excluded.

STUDY DESIGN

- Research case study method is done, for the patients who are willing to participate.
- The patients are counseled, screened and are brought to the Sarada Krishna Homoeopathic Medical College Hospital and rural centers of Sarada Krishna Homoeopathic Medical College for carrying out the study.
- Data will be collected according to pre structured SKHMC format.

- Physical examination such as body weight, height and basic anthropometric measurement will be done for screening and will be enrolled for the study accordingly.
- Patient will be advised with a standardized common nutritious diet.
- The prescription is based on the growth analysis using the growth chart.
- The remedy may be repeated, changed its potency or remedy whenever needed.
- Cases will be followed up and assessment will be done.
- Pre and post treatment analysis and comparison will be done using growth chart.
- Improvement will be assessed in 6 months of research study.
- Results will be subjected to statistical analysis and hypothesis will be tested using‘t’ test.

5.0 OBSERVATIONS AND RESULTS

A Sample of thirty cases obtained by screening the students from the patients who attended the OPD , IPD and rural centres of Sarada Krishna Homoeopathic Medical College and Hospital was taken for this study. The children having low growth percentile according to the WHO & IAP combined growth growth chart with a positive result were screened for the growth assessment. Growth curve must be low level from the standard 50^{th} percentile . After the screening procedure start the constitutional medication and observed and assessed for 6 month for the study. The results are presented on the basis of data obtained from the study group. The following tables and charts reveal the observations and results of this study.

DISTRIBUTION OF CASES ACCORDING TO THE AGE

Out of 30 cases 4 patient of age 4 with 13%, 5 patient of age 7 with 17 %, 2 patient of age 6 with 7 %, 3 patient of age 12 with 10%, 2 patient of age 15 with 7%, 3 patient of age 8 with 10%, 3 patient of age 11with 10%, 3 patient of age 5 with 10%, 2 patient of age 10 with 7 %, 1 patient of age 14 with 3%, 1 patient of age 16 with 3%, 1patient of age 3 with 3%.

Table no.5.1 Classifying cases according to the age

Age	No of Patient	Percentage
4	4	13
7	5	17
6	2	7
12	3	10
15	2	7
8	3	10
11	3	10
5	3	10
10	2	7

14	1	3
16	1	3
3	1	3

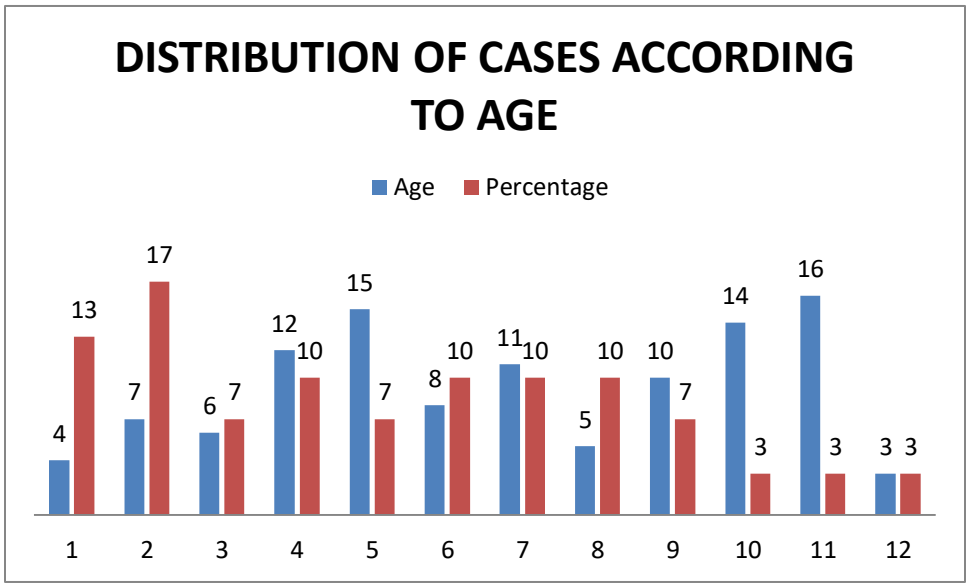

Figure 1

DISTRIBUTION OF CASES ACCORDING TO SEX

Among 30 cases 10 were(33%)are female and 20(67%)were male.

Table No. 5.2 classifying cases according to sex

Gender	Female	Male	Total
Number of Patients	10	20	30

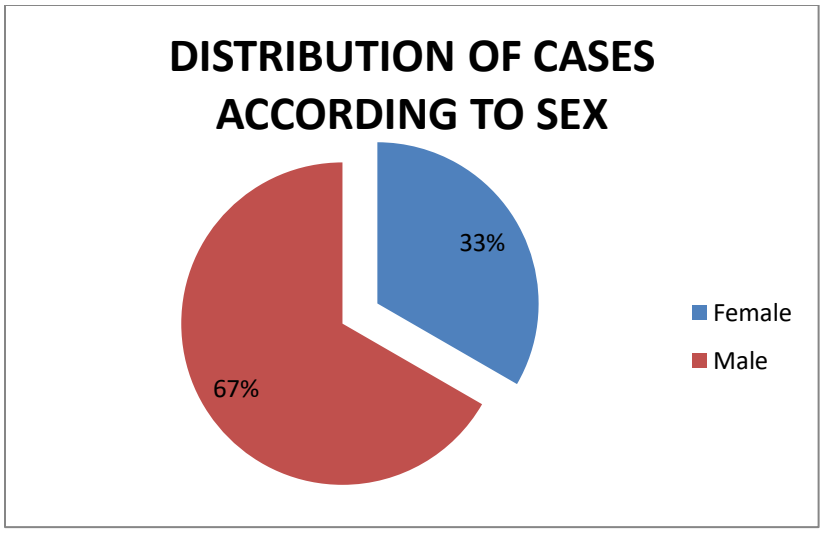

Figure 2

DISTRIBUTION OF CASES ACCORDING TO PROBABLE CAUSE

Out of 30 cases the probable cause of patient with under weight are 2 patient of 7% having natal cause, 10 patient of 33% having respiratory cause, 4 patient of 13% having gastric diseases, 11 patient of 37% having unknown cause and 3 patient of 10% having recurrent attack of fever.

Table No. 5. 3 Classifying cases according to the probable cause of under weight

Probable cause	Natal cause	Respiratory diseases	Gastric diseases	Unknown cause	R/A of fever
No of patients	2	10	4	11	3
Percentage	7	33	13	37	10

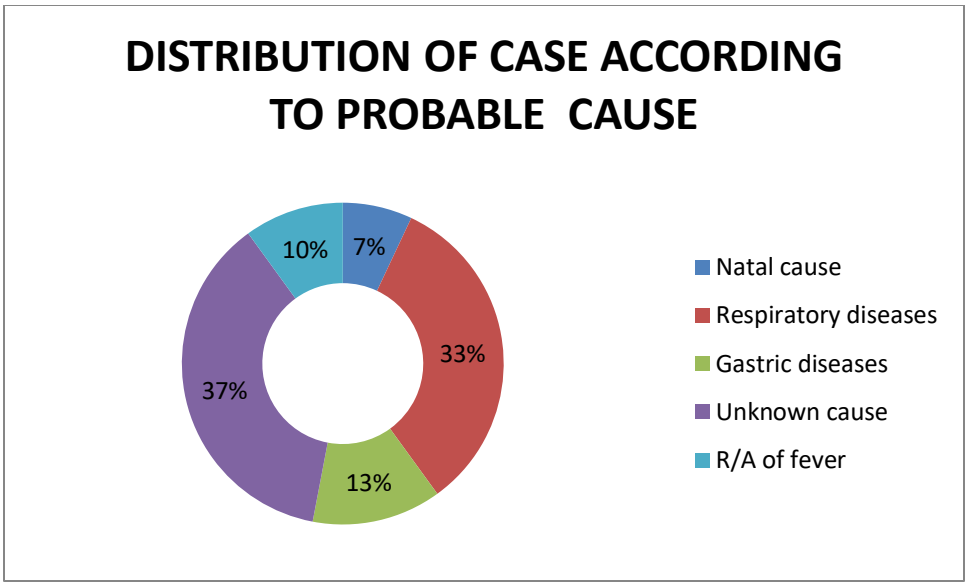

Figure 3

DISTRIBUTION OF CASES ACCORDING TO GROWTH PERCENTILE FOR WEIGHT

30 patients's growth percentile is placing below the 50th percentile, out of this 30 patient 10 patient of 33% having 0-3 percentile, 15 patient of 50% having 3-10 percentile and 5 patient of 17% having 10-25 percentile.

Table No. 5.4 Classifying cases according the growth percentile for weight

Percentile range	Percentile 0-3	Percentile 3-10	Percentile 10-25
Number of patients	10	15	5
Percentage	33	50	17

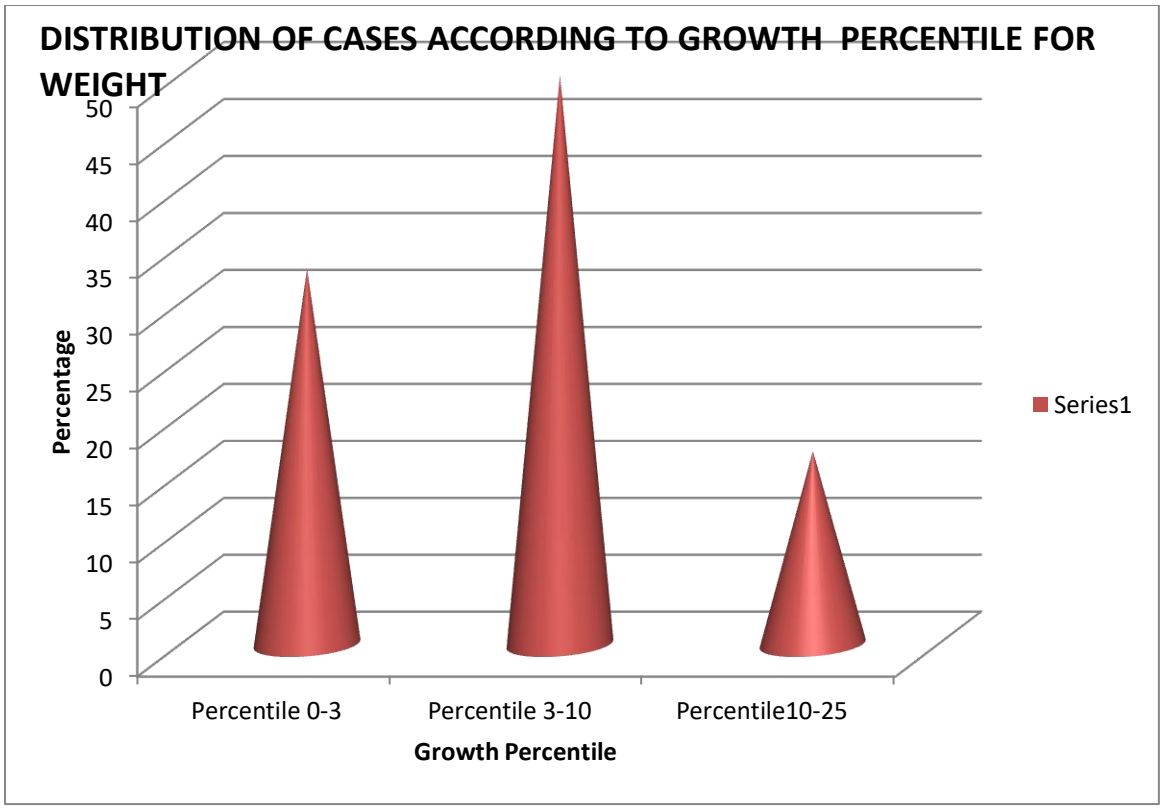

Figure 4

DISTRIBUTION OF CASES ACCORDING TO GROWTH PERCENTILE FOR HEIGHT

Table No. 5.5 Classifying cases according to the growth percentile for height.

Percentile range	Percentile 0-3	Percentile 3-10	Percentile 10-25	Percentile 25-50
Number of patients	7	14	7	2
Percentage	23	47	23	7

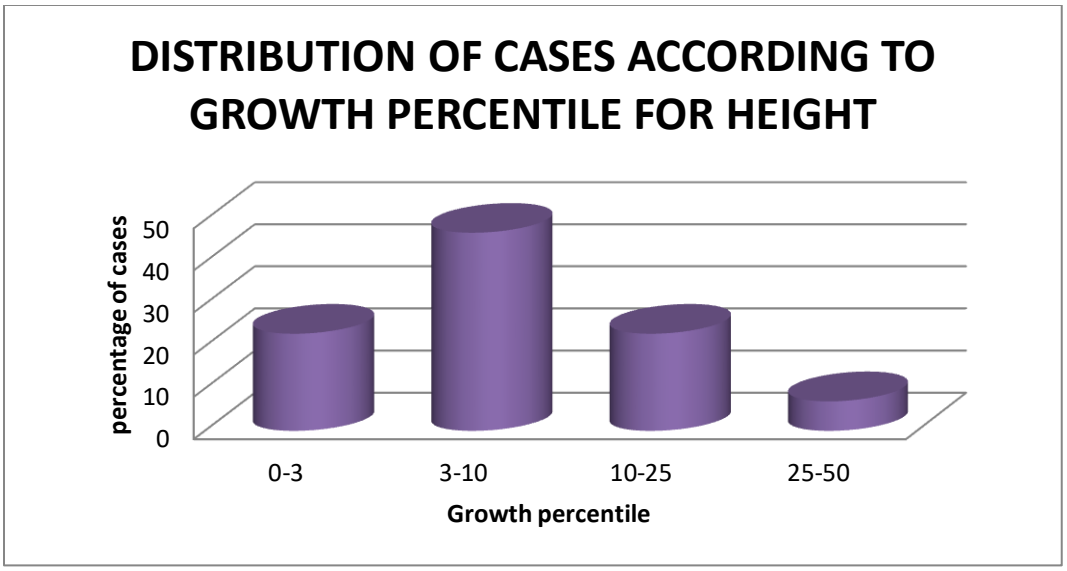

Figure 5

DISTRIBUTION OF CASES ACCORDING TO BIRTH WEIGHT

Among 30 patient 3 patient of 10% comes below 2.5kg, 24 patients of 80% comes under 2.5kg-3kg and 3 patients of 10% comes under 3kg above.

Table No. 5.6 Classifying cases according to birth weight

	Below 2.5kg	2.5kg-3kg	3kg above
Number of patients	3	24	3
Percentage	10	80	10

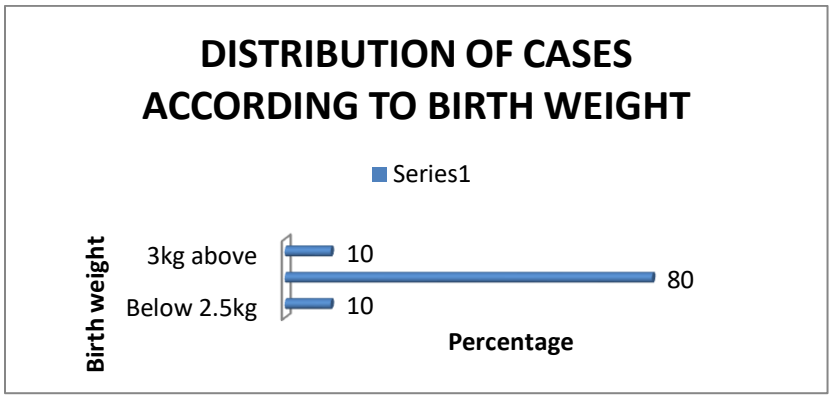

Figure 6

DISTRIBUTION OF CASES ACCORDING TO NUTRITION INTAKE

Among 25 patients of83 % having average nutritional intake and about 5 patietns of 17% patient having good nutritional intake

Table No. 5.7 Classifying cases according to nutrition intake

	Average	Good
Number of patients	25	5
Percentage	83	17

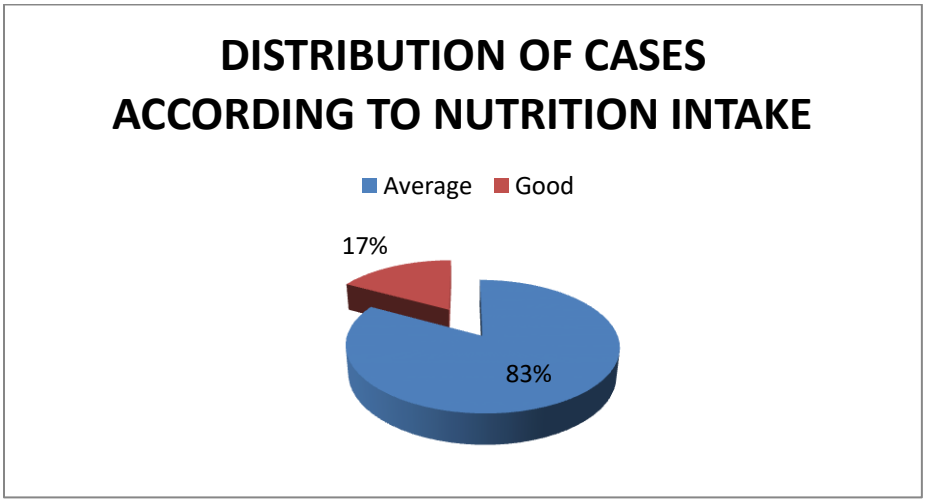

Figure 7

DISTRIBUTION OF CASES ACCORDING TO CONSTITUTIONAL REMEDIES

Table No. 5.8 Classifying cases according to constitutional medicine

Out of 30 patients, 10 patients of 34% given Lycopodium, 7 patients of 24% given Silicea, 6 patients of 20% given Calcarea carb, 3 patients of 10% given Calcarea phos, 1

patient of 3% given Phosphorus, 1 patient of 3% given Natrum mur, 1 patient of 3% given Lachesis and 1 patient of 3% given Pulsatilla.

Constitution medicines	Lycopodium	Silicea	Calcarea carb	Calcarea phos	Phosphorus	Natrum mur	Lachesis	Pulsatilla
Number of patients	10	7	6	3	1	1	1	1
Percentage	34	24	20	10	3	3	3	3

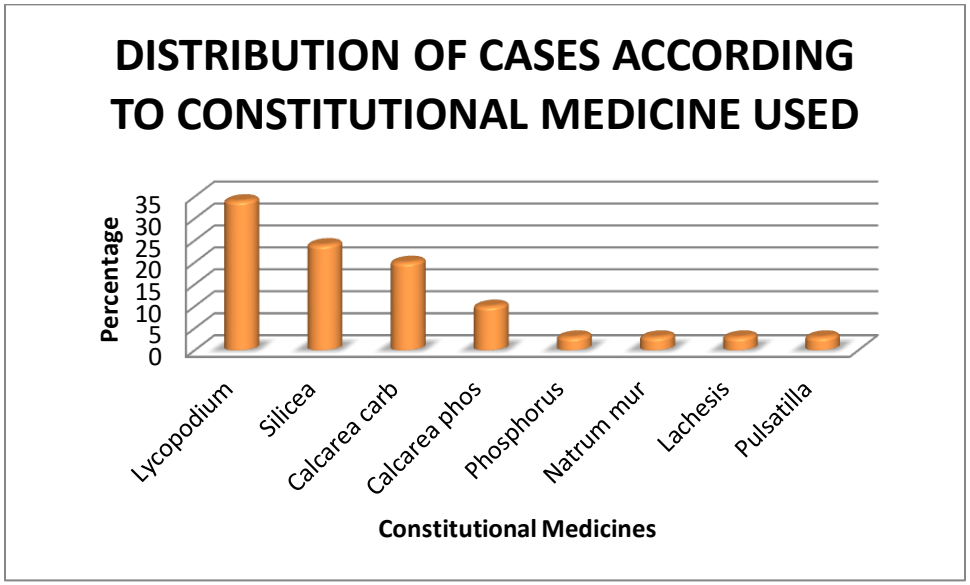

Figure 8

DISTRIBUTION OF CASES ACCORDING TO THE POTENCY

Out of 30 cases 17 patients of 56% given 200 potency, 9 patients of 30% given 30 potency, 2 patients of 7% given 1M potency and 2 patients of 7% given 0/6 potency.

Table .5.9 Classifying cases according to the potency selected

Potency	200	30	1M	0/6
Number of	17	9	2	2

Patients				
Percentage	56	30	7	7

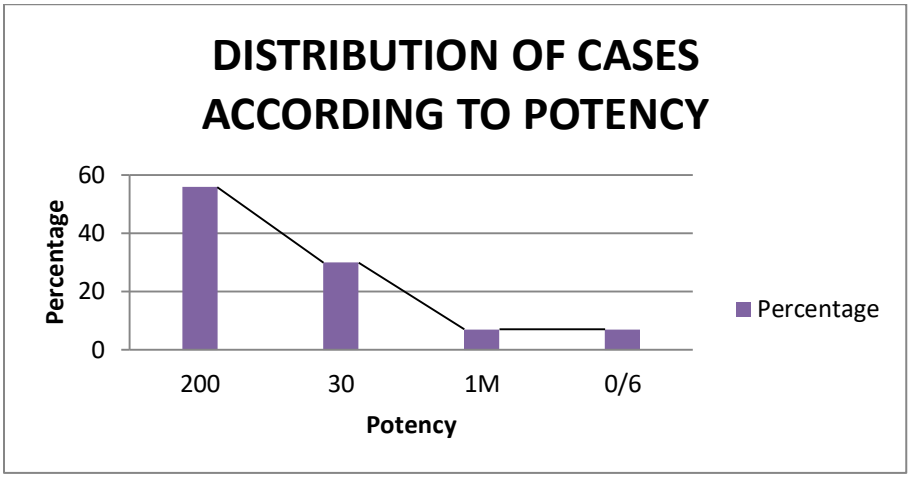

Figure 9

DISTRIBUTION OF CASES ACCORDING TO THE INTERCURRENT USED

Out of 30 cases intercurrent used in 12 cases, where 9 cases of 30% used Tuberculinum, 3 cases of 10% used Psorinum and remaining 18 cases of 60% no intercurrent used.

Table.5.10 Classifying cases according to intercurrent used

Intercurrent	Tuberculinum	Psorinum	No intercurrent
Number of Patients	9	3	18
Percentage	30	10	60

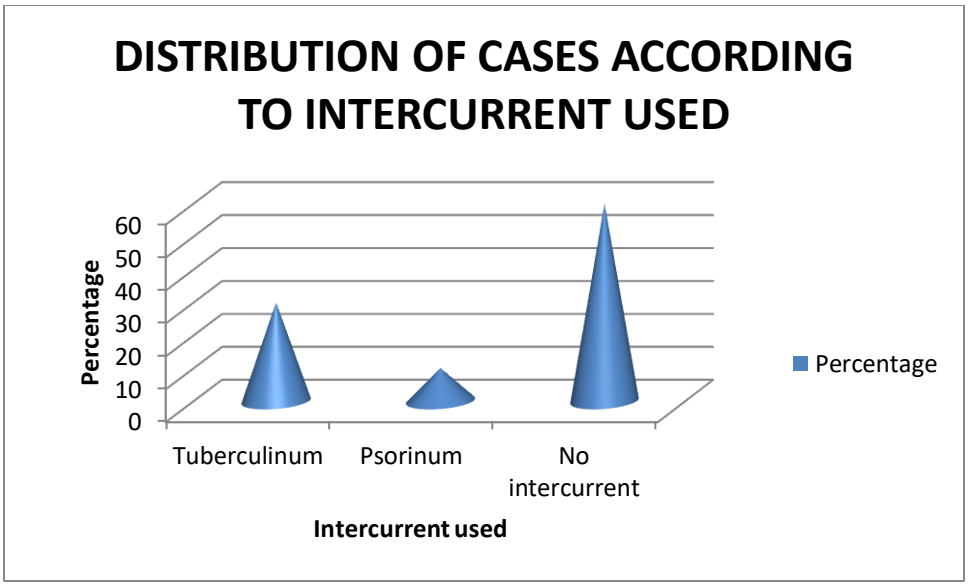

Figure 10

DISTRIBUTION OF CASES ACCORDING TO THE IMPROVEMENT OF THE ACCOMPANYING COMPLAINTS

Out of 30 cases 1 patient of 3% having mild improvement, 8 patient of 27% having moderate improvement, 6 patient of 20% having severe improvement and 15 patients of 50% have no accompanying diseases.

Table No.5.11 Classifying cases according to the improvement of the accompanying diseases

	MILD IMPROVEMENT	Moderate improvement	Severe improvement	No accompanying diseases
Number of patients	1	8	6	15
Percentage	3	27	20	50

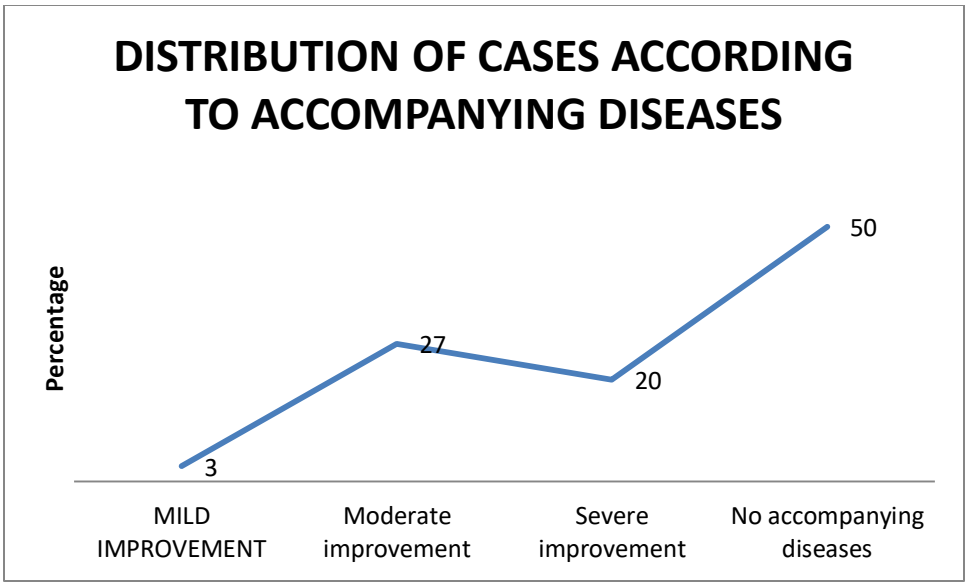

Figure 11

DISTRIBUTION OF CASES ACCORDING TO THE IMPROVEMENT IN GROWTH PERCENTILE FOR WEIGHT.

Table No.5.12 Classifying cases according to the mid value of growth percentile for weight before and after

Sl no	Growth Percentile for weight(Mid point) – before	Growth Percentile for weight (Mid point)-After
Case 1	1.5	6.5
Case 2	6.5	17.5
Case 3	6.5	17.5
Case 4	6.5	17.5
Case 5	17.5	37.5
Case 6	17.5	37.5
Case 7	6.5	17.5
Case 8	6.5	17.5
Case 9	6.5	17.5
Case 10	6.5	17.5

Case 11	1.5	6.5
Case 12	6.5	17.5
Case 13	1.5	6.5
Case 14	1.5	6.5
Case 15	6.5	17.5
Case 16	6.5	17.5
Case 17	17.5	37.5
Case 18	17.5	17.5
Case 19	17.5	37.5
Case 20	6.5	17.5
Case 21	6.5	6.5
Case 22	1.5	6.5
Case 23	6.5	17.5
Case 24	1.5	6.5
Case 25	6.5	17.5
Case 26	1.5	6.5
Case 27	1.5	6.5
Case 28	1.5	6.5
Case 29	6.5	17.5
Case 30	1.5	6.5

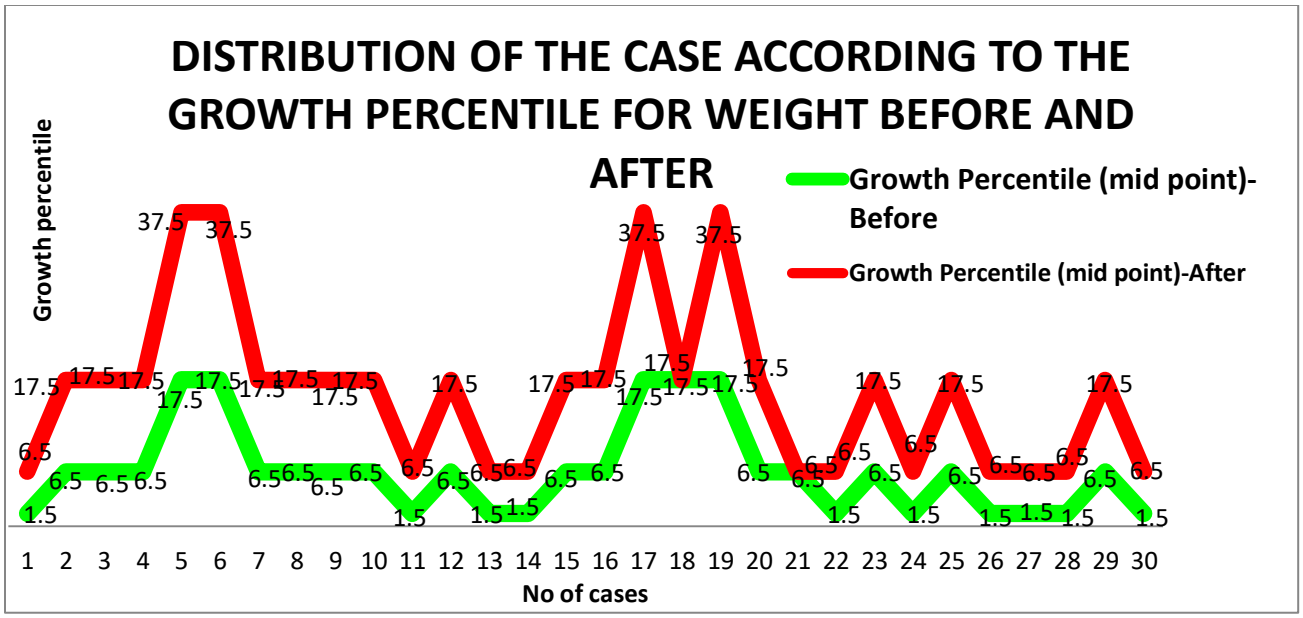

Figure 12

DISTRIBUTION OF CASES ACCORDING TO THE IMPROVEMENT IN GROWTH PERCENTILE FOR HEIGHT.

Table No.5.13 Classifying cases according to the mid value of growth percentile for height before and after

Sl no	Growth Percentile for height(midpoint)before	Growth Percentile for height(midpoint)After
Case 1	1.5	6.5
Case 2	37.5	37.5
Case 3	37.5	37.5
Case 4	37.5	37.5
Case 5	82.5	93.5
Case 6	62.5	62.5
Case 7	17.5	17.5
Case 8	37.5	37.5
Case 9	6.5	17.5
Case 10	37.5	37.5

Case 11	17.5	17.5
Case 12	37.5	37.5
Case 13	1.5	17.5
Case 14	37.5	37.5
Case 15	37.5	37.5
Case 16	17.5	17.5
Case 17	6.5	37.5
Case 18	17.5	17.5
Case 19	17.5	37.5
Case 20	17.5	17.5
Case 21	6.5	37.5
Case 22	6.5	6.5
Case 23	6.5	17.5
Case 24	1.5	6.5
Case 25	37.5	37.5
Case 26	6.5	6.5
Case 27	1.5	6.5
Case 28	6.5	37.5
Case 29	17.5	17.5
Case 30	1.5	6.5

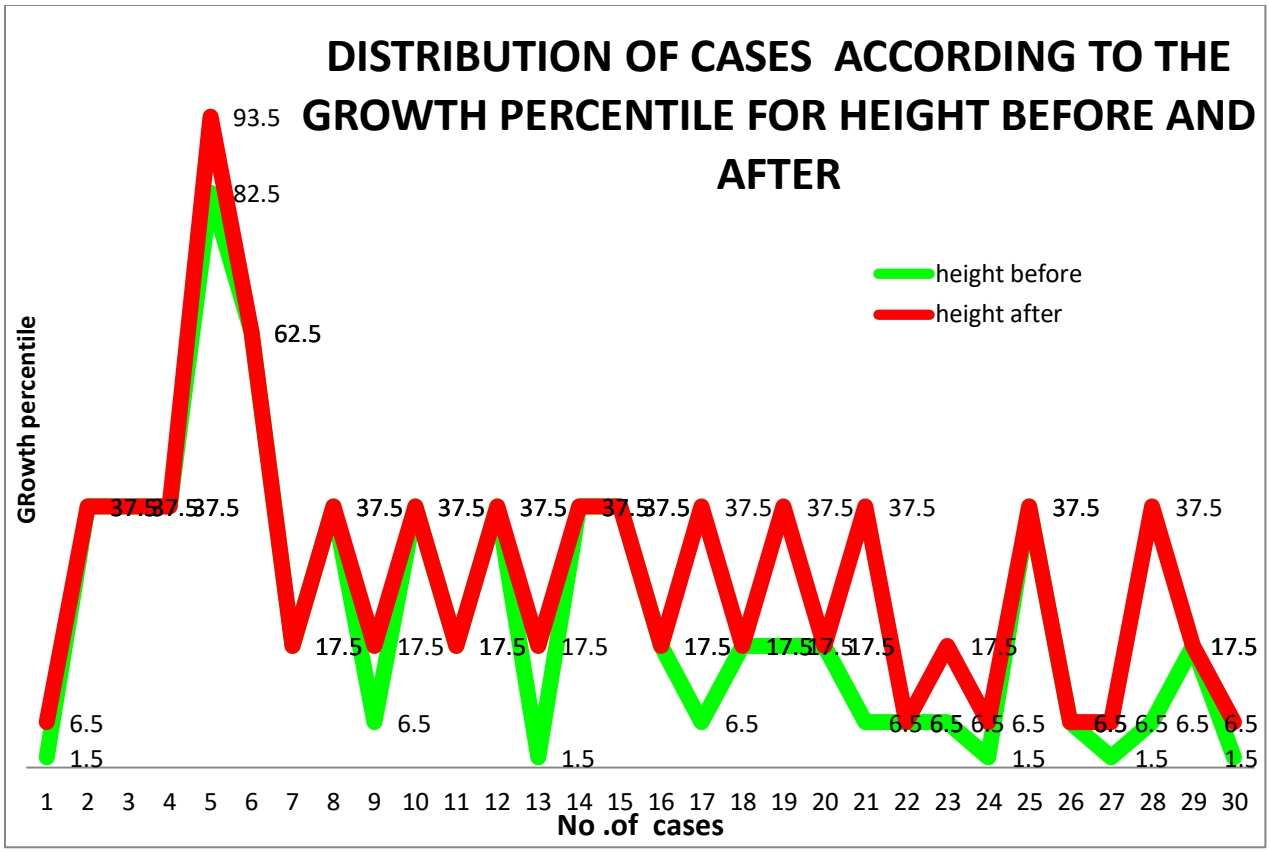

Figure 13

DISTRIBUTION OF CASES ACORDING TO GROWTH PERCENTILE FOR WEIGHT AND HEIGHT BEFORE AND AFTER THE STUDY.

Table No.5.14 Classifying cases according to growth percentile for weight and height before and after the study.

Sl no	Growth Percentile for height(midpoint)before	Growth Percentile for height(midpoint)After	Growth Percentile for height(midpoint)before	Growth Percentile for height(midpoint)After
Case 1	1.5	6.5	1.5	6.5
Case 2	37.5	37.5	37.5	37.5
Case 3	37.5	37.5	37.5	37.5

Case 4	37.5	37.5	37.5	37.5
Case 5	82.5	93.5	82.5	93.5
Case 6	62.5	62.5	62.5	62.5
Case 7	17.5	17.5	17.5	17.5
Case 8	37.5	37.5	37.5	37.5
Case 9	6.5	17.5	6.5	17.5
Case 10	37.5	37.5	37.5	37.5
Case 11	17.5	17.5	17.5	17.5
Case 12	37.5	37.5	37.5	37.5
Case 13	1.5	17.5	1.5	17.5
Case 14	37.5	37.5	37.5	37.5
Case 15	37.5	37.5	37.5	37.5
Case 16	17.5	17.5	17.5	17.5
Case 17	6.5	37.5	6.5	37.5
Case 18	17.5	17.5	17.5	17.5
Case 19	17.5	37.5	17.5	37.5
Case 20	17.5	17.5	17.5	17.5
Case 21	6.5	37.5	6.5	37.5
Case 22	6.5	6.5	6.5	6.5
Case 23	6.5	17.5	6.5	17.5

Case 24	1.5	6.5	1.5	6.5
Case 25	37.5	37.5	37.5	37.5
Case 26	6.5	6.5	6.5	6.5
Case 27	1.5	6.5	1.5	6.5
Case 28	6.5	37.5	6.5	37.5
Case 29	17.5	17.5	17.5	17.5
Case 30	1.5	6.5	1.5	6.5

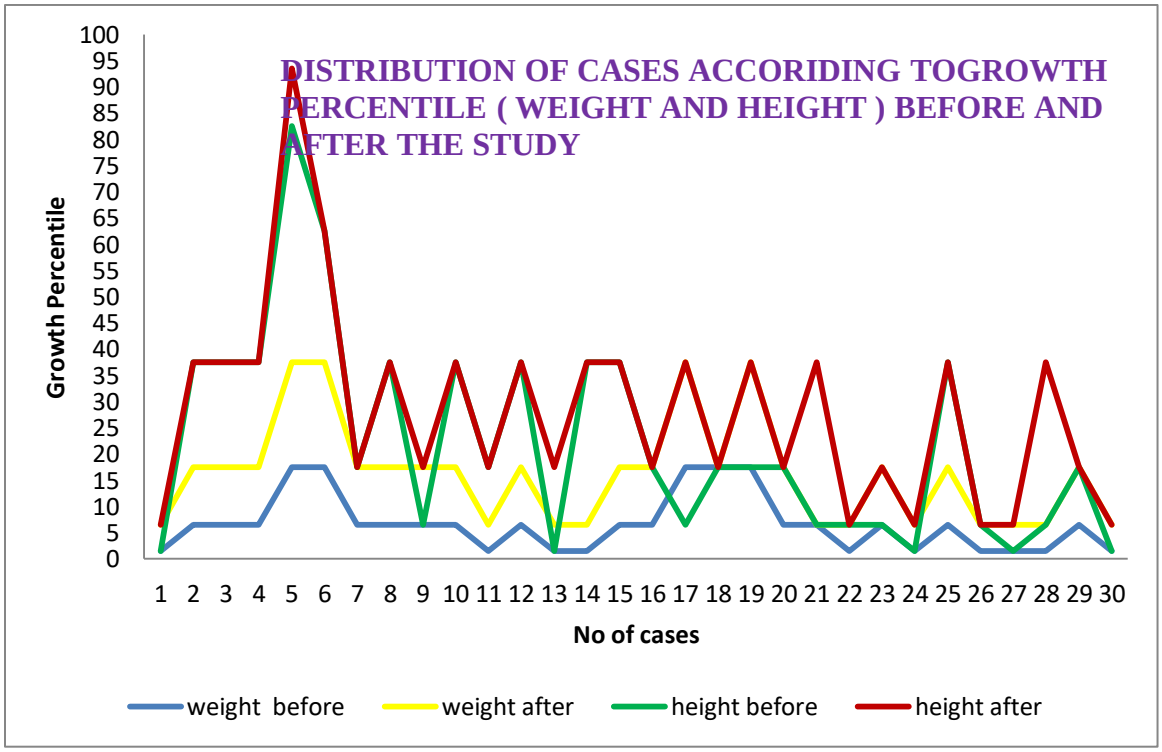

Figure 14

RESULT

From the study, Homoeopathy is very effective in the management of low growth standard. Lycopodium , silicea, Calcarea carb, Calcarea Phos, Natrum Mur, Lachesis and Pulsatilla are good medicines in improving the growth standard. They are also good for treating the associated complaints of low growth standard.

SHOW THE STATISTICS APPROACH OF THE STUDY

Finally the result shows that the Homoeopathy is effective in treating the low growth standard. A vast improvement was seen in this. In future with remedial measures homoeopathic treatment are also effective in treating the patient with underweight and stunted children.

P value is significant hence the study is good in its result.

6.0 STATISTICAL ANALYSIS

TABLE 6.1 STATISTICAL ANALYSIS FOR WEIGHT

SL No.	X	Y	d1=x-y	d-d1	$(d-d1)^2$
1.	6.5	17.5	-11	-1.5334	2.35131556
2.	6.5	17.5	-11	-1.5334	2.35131556
3.	17.5	37.5	-20	-10.5334	110.9525156
4.	17.5	37.5	-20	-10.5334	110.9525156
5.	6.5	17.5	-11	-1.5334	2.35131556
6.	6.5	17.5	-11	-1.5334	2.35131556
7.	6.5	17.5	-11	-1.5334	2.35131556
8.	6.5	17.5	-11	-1.5334	2.35131556
9.	1.5	6.5	-5	4.4666	19.95051556
10.	6.5	17.5	-11	-1.5334	2.35131556
11.	1.5	6.5	-5	4.4666	19.95051556
12.	1.5	6.5	-5	4.4666	19.95051556
13.	6.5	17.5	-11	-1.5334	2.35131556
14.	6.5	17.5	-11	-1.5334	2.35131556
15.	17.5	37.5	-20	-10.5334	110.9525156
16.	17.5	17.5	0	9.4666	89.61651556
17.	17.5	37.5	-20	-10.5334	110.9525156
18.	6.5	17.5	-11	-1.5334	2.35131556
19.	6.5	6.5	0	9.4666	89.61651556
20.	1.5	6.5	-5	4.4666	19.95051556
21.	6.5	17.5	-11	-1.5334	2.35131556
22.	1.5	6.5	-5	4.4666	19.95051556
23.	6.5	17.5	-11	-1.5334	2.35131556
24.	1.5	6.5	-5	4.4666	19.95051556
25.	1.5	6.5	-5	4.4666	19.95051556

26.	1.5	6.5	-5	4.4666	19.95051556
27.	6.5	17.5	-11	-1.5334	2.35131556
28.	1.5	6.5	-5	4.4666	19.95051556
29.	6.5	17.5	-11	-1.5334	2.35131556
30.	6.5	17.5	-11	-1.5334	2.35131556
	Total		$\sum$d1=-9.4666		$\Sigma (d1-\bar{d}1)^2$= 855.4666668

X= Score before treatment

Y= Score after treatment

d1= Difference between before and after score

A. Question to be answered:

Is there any difference between the scores taken before and after the Homoeopathic treatment?

B. Null Hypothesis:

There is no difference between the scores taken before and after the Homoeopathic treatment.

C. Standard error of the mean differences:

The mean of the differences, $\bar{d}_1 = \Sigma d_1/n = 284/30 = -9.4667$

The estimate of population standard deviation is given by,

$\Sigma(d_1-\bar{d}_1)^2 = 855.4666668$

$$SD = \sqrt{\Sigma\left(d1 - \bar{d}1\right)^2/n - 1}$$

$$= \sqrt{855.466/29)}$$

=√ 29.49888276

=5.431287

= Standard error (S.E) = S.D/$\sqrt{n}$ = 5.431287/$\sqrt{30}$ = 0.991613811

D. The test statistics is Paired t:

Critical ratio,$t = \frac{\bar{d}}{S.D/\sqrt{n}}$

=9.546720

t-Test: Paired Two Sample for Means

	Variable 1	**Variable 2**
Mean	6.666667	16.13333
Variance	29.45402	99.13678
Observations	30	30
Pearson Correlation	0.916893	
Hypothesized Mean Difference	0	
Df	29	
t Stat	9.54674	
P(T<=t) one-tail	9.35E-11	
t Critical one-tail	1.699127	
P(T<=t) two-tail	1.87E-10	
t Critical two-tail	2.04523	

COMPARISON WITH THE TABLED VALUE :

Statistical analysis was done by using the Pearson correlation coefficient for dichotomous data; paired t test was also carried out using same data. To detect the difference between growth percentile before and after the treatment, t test was conduct .

And paired t test showed that statistical value is(9.54674), which was higher than table value (2.045). The P value obtained is 9.35E-11 (<0.05); Therefore the study is said to be statistically significant.

On comparing the score before and after treatment the means were 6.666667 and 16.13333 and the variance were 29.45402 and 99.13678 respectively. The data showed a positive correlation of 0. Since the calculated value is greater than the tabled value at 5% and 1% the null hypothesis is rejected at 95% significance and hypothesis that homoeopathy is effective in improving the weight in children.

6.2 STATISTICAL ANALYSIS FOR HEIGHT

SL No.	X	Y	d1=x-y	d-d1	(d-d1)2
1	1.5	6.5	-5	1	1
2	37.5	37.5	0	6	36
3	37.5	37.5	0	6	36
4	37.5	37.5	0	6	36
5	82.5	93.5	-11	-5	25
6	62.5	62.5	0	6	36
7	17.5	17.5	0	6	36
8	37.5	37.5	0	6	36
9	6.5	17.5	-11	-5	25
10	37.5	37.5	0	6	36
11	17.5	17.5	0	6	36
12	37.5	37.5	0	6	36
13	1.5	17.5	-16	-10	100
14	37.5	37.5	0	6	36
15	37.5	37.5	0	6	36
16	17.5	17.5	0	6	36

17	6.5	37.5	-31	-25	625
18	17.5	17.5	0	6	36
19	17.5	37.5	-20	-14	196
20	17.5	17.5	0	6	36
21	6.5	37.5	-31	-25	625
22	6.5	6.5	0	6	36
23	6.5	17.5	-11	-5	25
24	1.5	6.5	-5	1	1
25	37.5	37.5	0	6	36
26	6.5	6.5	0	6	36
27	1.5	6.5	-5	1	1
28	6.5	37.5	-31	-25	625
29	17.5	17.5	0	6	36
30	1.5	6.5	-5	1	1
	Total		$\sum d1 = -6$		$\Sigma (d1-\bar{d}1)^2 = 2898$

X= Score before treatment

Y= Score after treatment

d_1= Difference between before and after score

A. Question to be answered:

Is there any difference between the scores taken before and after the Homoeopathic treatment?

B. Null Hypothesis:

There is no difference between the scores taken before and after the Homoeopathic treatment.

C. Standard error of the mean differences:

The mean of the differences, $\bar{d}_1 = \Sigma d_1/n = -182/30 = -6$

The estimate of population standard deviation is given by,

$\Sigma(d_1-\bar{d}_1)^2 = 2898$

$$SD = \sqrt{\Sigma\left(d1 - \bar{d}1\right)^2 / n - 1}$$

$$= \sqrt{(2898/29)}$$

$$= \sqrt{99.931}$$

$$= 9.9965494$$

= Standard error (S.E) = S.D/$\sqrt{n}$ = 9.9965494/$\sqrt{30}$ = 1.824944

D. The test statistics is Paired t:

Critical ratio, $t = \frac{\bar{d}}{S.D/\sqrt{n}}$

$$= 3.32$$

t-Test: Paired Two Sample for Means

	Variable 1	**Variable 2**
Mean	21.93333	28
Variance	392.6678	359.2931
Observations	30	30
Pearson Correlation	0.867968	
Hypothesized Mean Difference	0	
Df	29	
t Stat	3.32407	
P(T<=t) one-tail	0.001206	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.002412	
t Critical two-tail	2.04523	

COMPARISON WITH THE TABLED VALUE :

Statistical analysis was done by using the Pearson correlation coefficient for dichotomous data; paired t test was also carried out using same data. To detect the difference between growth percentile before and after the treatment, t test was conduct. And paired t test showed that statistical value is(3.32407), which was higher than table value (2.045). The P value obtained is 0.001206 (<0.05); Therefore the study is said to be statistically significant.

On comparing the score before and after treatment the means were 21.93333 and 28 and the variance were 392.6678 and 359.2931 respectively. The data showed a positive correlation of 0. Since the calculated value is greater than the tabled value at 5% and 1% the null hypothesis is rejected at 95% significance and hypothesis that homoeopathy is effective in improving the height in children.

INFERENCE:

This study provides an evidence to show that there is significant. Improved growth standard with homoeopathy.

7.0 DISCUSSION

The study was conducted on the patients of 2-18 yrs of age diagnosed as Under weight by recording the growth standards in WHO And IAP combined growth chart ,who attended the out patient department and the rural centres of Sarada Krishna Homoeopathic Medical college.

30 cases were selected as per the inclusion criteria and details of cases were recorded in the standardized case record. The study was conducted to show the effectiveness of Homoeopathic Constitutional Medicine in improving the growth standards in children. Prescription is based on the symptom totality and after the repertrization. 30 cases were strictly adviced with common nutritious diet . The cases where followed for a period of 6 months. 30 cases were assessed before and after the treatment. Improvement is evaluated by the growth curve change in the growth chart. Then the statistical analysis was done with paird t test.

Based on the analysis of the 30 cases the following observations are made with the comparison of available literature.

AGE:

In this study 2-18 years of children were selected. According to the study under weight is more prevalent in age group 4-16. According to the previous studies the prevalace of underweight is more in adolescent age group especially age of 14[(37),]but in my study I got more percentage of children with underweight are 7 years aged ones that is 5 patient of age 7 with 17 %.And other 4 patient of age 4 with 13%, , 2 patient of age 6 with 7 %, 3 patient of age 12 with 10%, 2 patient of age 15 with 7%, 3 patient of age 8 with 10%, 3 patient of age 11with 10%, 3 patient of age 5 with 10%, 2 patient of age 10 with 7 %, 1 patient of age 14 with 3%, 1 patient of age 16 with 3%, 1 patient of age 3 with 3%.

SEX

Acoording to the previous studies Male children are more suffered with under weight[37] ,In my study also among 30 cases 20(67%)were male and remaining 10 that is (33%)are female .

PROBABLE CAUSE OF THE PROBLEM

Infections such as diarrhea, ARI, measles, typhoid,tuberculosis, UTI, are common diseases causing the children to grow slowly[12].In my study there are some disease causes related with respiratory and gastric diseases become the cause of under weight. Some other Natal cause including low birth weight, and delayed development are also present. Some patient having the recuurent attack of fever ,it causing loosing weight. Out of 30 cases 2 patient of 7% having natal cause, 10 patient of 33% having respiratory cause, 4 patient of 13% having gastric diseases, 11 patient of 37% having unknown cause and 3 patient of 10% having recurrent attack of fever.

GROWTH PERCENTILE FOR WEIGHT & HEIGHT

In this study more number of patients having poor weight come in the range between 3-10 growth percentile that is about 50% and remaining 10 patient of 33% having 0-3 percentile and 5 patient of 17% having 10-25 percentile.

In this study more number of patients's height come in between 3-10 growth percentile that is about 47% and others of 23% patient having 0-3 percentile and 23% of patient having 10-25 percentile and 7% of patient having 25-50 percetile.

While comparing with the growth percentiles, in majority of cases before study weight is not the same percentile as height. But after the treatment weight improved more than height and approach towards the height proportionately.

BIRTH WEIGHT

Low birth weight causes high mortality, poor physical growth[12]. Among 30 patient 3 patient of 10% comes below 2.5kg, 24 patients of 80% comes under 2.5kg-3kg and 3 patients of 10% comes under 3kg above.

NUTRITIONAL INTAKE

Paediatric eating disorders have significant role in recent decades. The serious mental illnesses,which tend to have their onset during the preteen years,can trigger children to diet excessively, significantly limit their food intake[26]. In this study among 30 cases 25 patients of 83 % having average nutritional intake and about 5 patietns of 17% patient having good nutritional intake. That means patient included in this study are having slow weight gain not due to limited nutrition because all of the 30 cases having average or good nutritional intake.

REMEDY

Out of 30 patients, 10 patients of 34% given Lycopodium, 7 patients of 24% given Silicea, 6 patients of 20% given Calcarea carb, 3 patients of 10% given Calcarea phos, 1 patient of 3% given Phosphorus, 1 patient of 3% given Natrum mur, 1 patient of 3% given Lachesis and 1 patient of 3% given Pulsatilla.

POTENCY

Out of 30 cases 17 patients of 56% given 200 potency, 9 patients of 30% given 30 potency, 2 patients of 7% given 1M potency and 2 patients of 7% given 0/6 potency.

INTERCURRENT USED

Out of 30 cases intercurrent used in 12 cases, where 9 cases of 30% used Tuberculinum, 3 cases of 10% used Psorinum and remaining 18 cases of 60% no intercurrent used.

IMPROVEMENT IN ACCOMPANYING DISEASES

Out of 30 cases 1 patient of 3% having mild improvement, 8 patient of 27% having moderate improvement, 6 patient of 20% having severe improvement and 15 patients of 50% have no accompanying diseases.

.

8.0 LIMITATIONS

- Number of samples used in this study is very small. Therefore, generalization of the result and inferences of the study need to be done cautiously.
- Selections of cases were difficult since many of the cases were irregular for reporting, some of them even dropped out and the patients after relieving from complaint mostly will not get follow up.
- There was no control group since the sample size was small.
- Improvement in height is not a expectable one because it sometimes depends upon the parental height. Weight is the only true measure that showing the growth according to the age
- Children participated in this study may or may not followed the diet adviced them, hence this may affect the result.

8.1 RECOMMENDATIONS

- Bigger sample size with extended time of research would provide better results.
- It will be always scientific if control (placebo) group would have been kept simultaneously to verify the effectiveness of treatment.
- More cases of low growth standard comes under unknown cause. So more research needed in this field.

9.0 CONCLUSION

A sample of 30 cases selected after screening studentsfrom different for school health programs and patients who visited the OPD of Sarada Krishna homoeopathic medical college and hospital were selected as per the inclusion criteria. Conclusions were made after a statistical analysis of cases with low growth standard. The following conclusions were drawn from the study as follows:

Majority of patients belong to age groups 4 years to 16.

Majority of screened children were 20 males and 10 were females .

Majority of the students with low growth standard have respiratory disease and gastric disease so the research should focus on the disease causes of low growth standard in future.

Most of the students have unknown reason for losing weight.

During the starting of treatment improvement of weight is not in ratio with height. Many of the children having normal height while marking on the growth percentile curve for height but no normal weight. In each cases it moves it independent to weight. Some cases height is going on the centre percentile, then it goes for a stand still. It shows that children having a familial tendency will be stunted their height. But after the treatment weight approaches to the height percentile proportionately.

Children participated in the study having the disease condition of a long duration are in improvement with their recurrently occuring symptoms. It shows while treating with the

constitutional medicines it reduces the child's basic illness and automatically putting weight.

Lycopodium is the most suitable constitutional remedy for treating under weight with any cause.

Homoeopathy shows effectiveness in managing under weight.

10.0 SUMMARY

A sample of 30 cases from the patients who visited Sarada Krishna Homoeopathic Medical College and Hospital OPD and IPD were selected randomly as per the inclusion and exclusion criteria. The screening was done. Consitutional prescription was given to patient with Poor Growth standard. The cases were followed for a period of 6 months. The study was subjected to statistical analysis and results were made from the observations. On the basis of comparison of before treatment and after treatment scores in improvement criteria, it shows that homoeopathy is effective in managing low growth standard. Lycopodium and Silcea are very good effective in treating the poor growth standard patients.

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APPENDIX I

"Case records are our valuable asset"

SARADA KRISHNA

HOMOEOPATHIC MEDICAL COLLEGE & HOSPITAL

KULASEKHARAM, KANYAKUMARI DIST, TAMIL NADU- 629161

CHRONIC CASE RECORD

O.P. No: ……Unit……. Date: …….

Name: ……

Age: Years Sex: …….Religion: Christian Occupation:

Address:

……

……..

Phone No (Land): …… (Mobile): ……

Sl.No.	Dt. of Admn.	Dt. of Disch	Dt. of Review	I.P. No.	Ward	Bed No.	Remarks
1							
2							
3							
4							
5							

FINAL DIAGNOSIS:

Homoeopathic	
Disease	

RESULT:	Cured	Relieved	Referred	Otherwise	Expired

1. **INITIAL PRESENTATION OF ILLNESS**	
PATIENT'S NARRATION (in the very expressions used by him / she) & PHYSICIAN'S INTERROGATION	PHYSICIAN'S OBSERVATION

2.PRESENTING COMPLAINTS

LOCATION & DURATION	SENSATION & PATHOLOGY	MODALITIES	ACCOMPANIMENTS

3. HISTORY OF PRESENTING ILLNESS & TREATMENT

4. HISTORY OF PAST ILLNESS & TREATMENT ADOPTED

5. HISTORY OF FAMILY

6. PERSONAL HISTORY:

Place of birth: Religion: Education:

Birth: Birth weight: kg

Immunisation: done

Habit

7. LIFE SPACE INVESTIGATION:

8. PSYCHIC FEATURES:

9. PHYSICAL FEATURES:

A. APPEARANCE

B.REGIONAL

C.GENERALS

D.PHYSICAL EXAMINATION

i) **General**

Jaundice: Anaemia: no pallor Oedema: Cyanosis:

Clubbing: Lymphadenopathy:

Skin colour: Discolouration: Skin eruption: nil

Height: Weight: B.M.I:

Pulse rate: Resp.rate: Temp: B.P:

ii) **Systemic**

1. Respiratory System:

2. Cardio Vascular System:

3. Gastro Intestinal System:

4. Urogenital System:

5. Musculo-skeletal System:

6. Central Nervous System:

7. Skin:

8. Endocrine:

9. Eye/ENT:

---

10. MENSTRUAL HISTORY:

---

11. OBSTETRICAL HISTORY:

---

12. LABORATORY FINDINGS:

---

13. ANALYSIS & DIAGNOSIS OF DISEASE:

A. Provisional Diagnosis: Learning Disability

B. Differential Diagnosis:

C. Final Diagnosis (Disease)

14. DIAGNOSIS OF THE PATIENT

A. Analysis:

B. Evaluation of Symptoms/Totality of Symptoms:

Forgetfulness, Dullness, Sluggish, mental exertion aggravation

Desire to go somewhere always, Heedless

Craving salted items

Tendency to take cold

Extremities pain sore bruised exertion after

C. Miasmatic Expressions:

D. Repertorial Totality:

E. Final Diagnosis (Homoeopathic):

15. MANAGEMENT & TREATMENT

A. Plan of Treatment:

B. General/Surgical/Accessory:

C. Restrictions (Diet, Regimen etc):

Disease	Medicinal

D. Medicinal: First Prescription:

BASIS OF SELECTION

i) Medicine: R_x

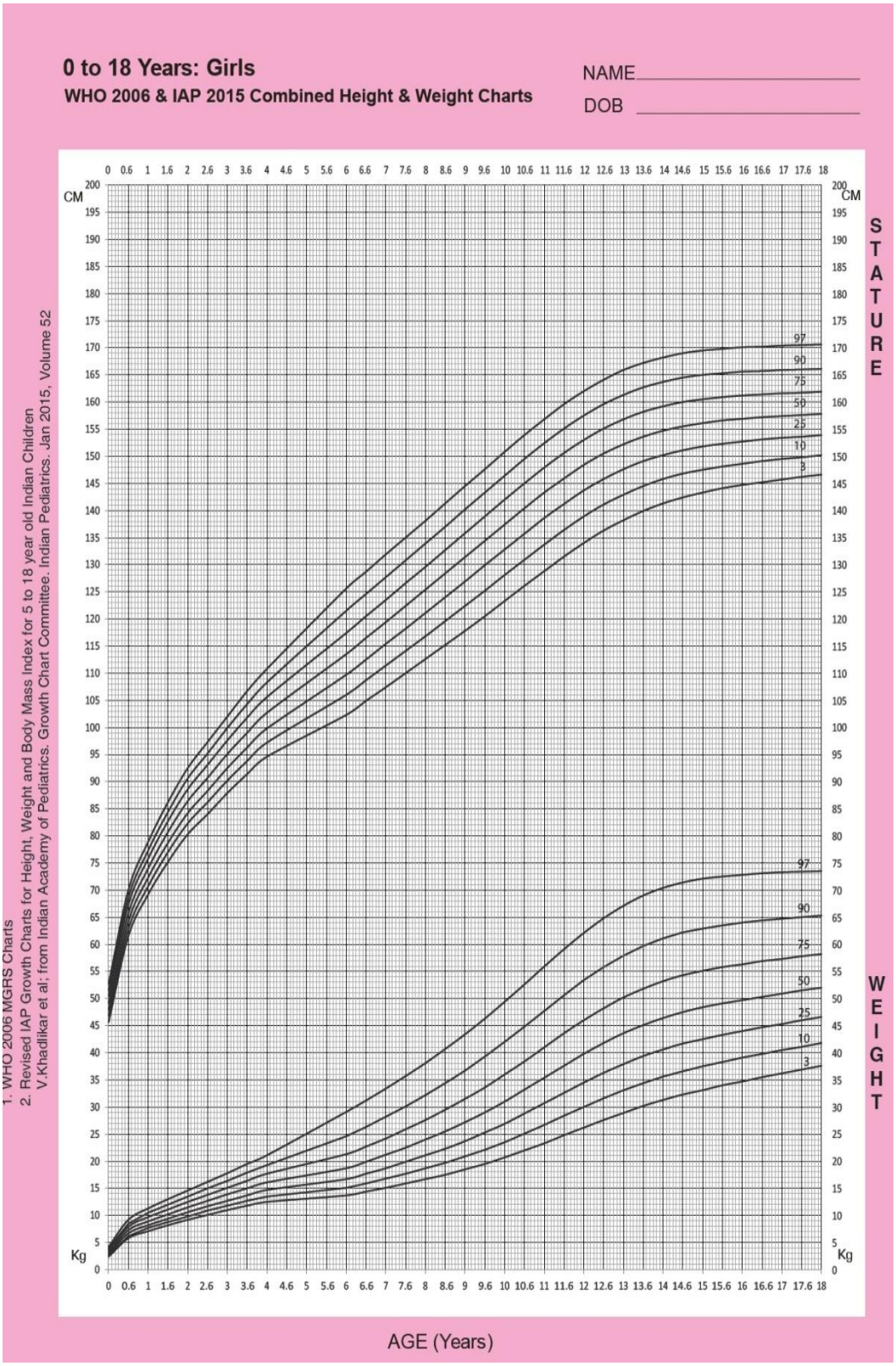
ii) Potency:

iii) Dose:

16. PROGRESS & FOLLOW UP

DATE	SYMPTOM CHANGES	INFERENCE	PRESCRIPTION

APPENDIX II

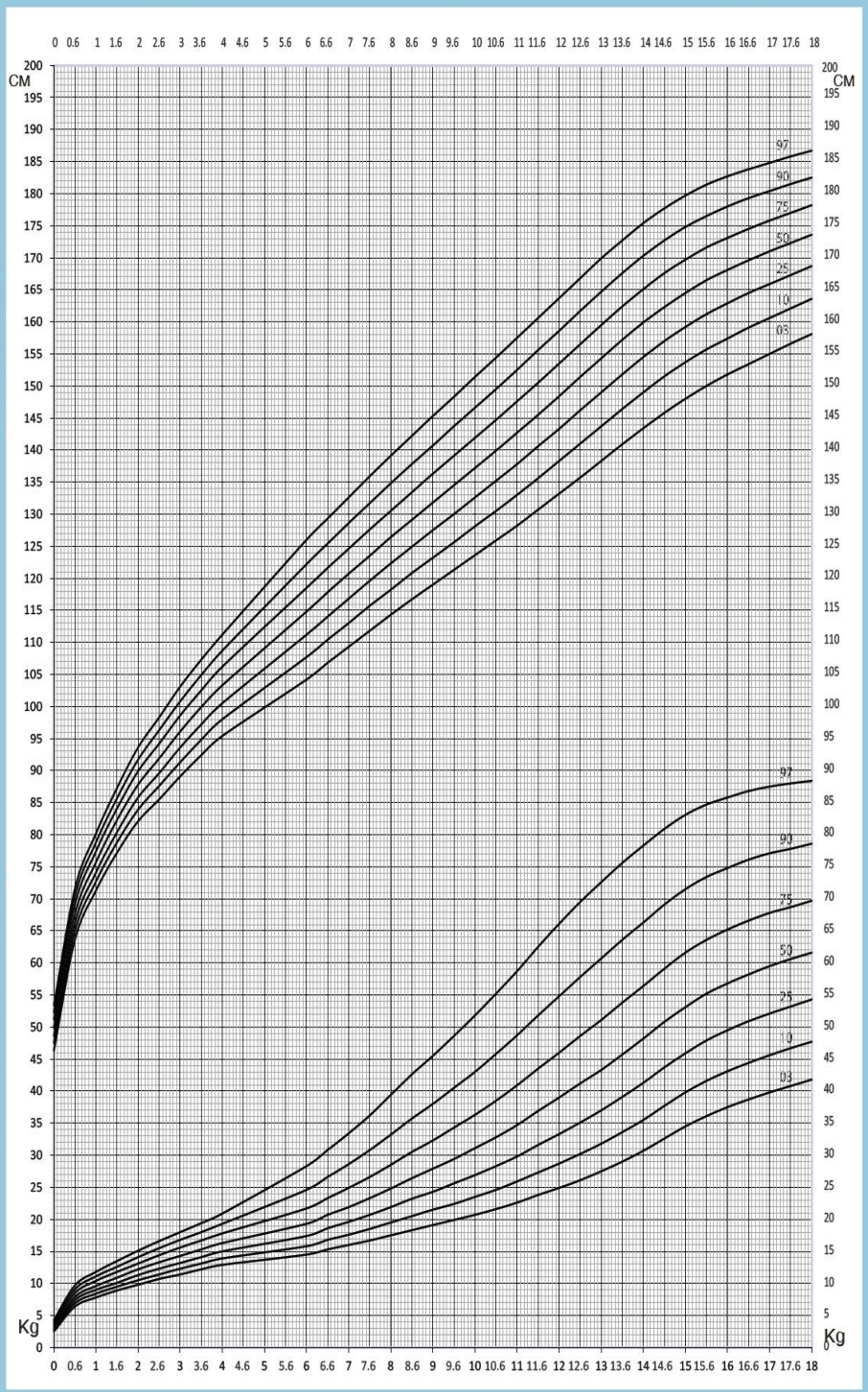

0 to 18 Years: Girls
WHO 2006 & IAP 2015 Combined Height & Weight Charts
NAME
DOB
1. WHO 2006 MGRS Charts
2. Revised IAP Growth Charts for Height, Weight and Body Mass Index for 5 to 18 year old Indian Children
V.Khadilkar et al; from Indian Academy of Pediatrics. Growth Chart Committee. Indian Pediatrics. Jan 2015, Volume 52
CM
Kg
STATURE
WEIGHT
97
90
75
50
25
10
3
AGE (Years)

0 to 18 Years: Boys

WHO 2006 & IAP 2015 Combined Height & Weight Charts

NAME_____

DOB _____



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APPENDIX III

"Case records are our valuable asset"

SARADA KRISHNA

HOMOEOPATHIC MEDICAL COLLEGE & HOSPITAL

KULASEKHARAM, KANYAKUMARI DIST, TAMIL NADU- 629161

CHRONIC CASE RECORD

OP. No: XXXX UNIT:VI Date: 24-9-18

Name: Master A Anush

Age: 12 Sex: Male Religion: Hindu Occupation:VIIth STD

Address: Ponmanai

Phone No (Mobile): 9442040295

Sl.No.	Dt. of Admn.	Dt. of Disch.	Dt. of Review	I.P. No.	Ward	Bed No.	Remarks
1							
2							
3							
4							
5							

FINAL DIAGNOSIS:

Homoeopathic	**CHRONIC MIASMATIC DISEASE – PSORA**
Disease	**UNDER NUTRITION WITH DERMATITIS**

RESULT:	Cured	Relieved	Referred	Otherwise	Expired

2. **INITIAL PRESENTATION OF ILLNESS**

PATIENT'S NARRATION (in the very expressions used by him / she) & PHYSICIAN'S INTERROGATION	PHYSICIAN'S OBSERVATION
Patient's mother narrated that he is having poor appetite with low weight gaining Since childhood. He is also having itching and peeling of skin in eruptions since 4 years	lean , emaciated, Drooping of eyes, fair complexion.

3. PRESENTING COMPLAINTS

LOCATION	SENSATION	MODALITY	CONCOMITANTS
Generals Since childhood	Low weight gain		
Skin 4 years	Itching	<Scratching >Warm water application	
	Peeling of skin	<Sun exposure <Playing in soil	

4. HISTORY OF PRESENTING COMPLAINTS

Patient's mother complaint that her child having poor weight gain since childhood. For this complaint the took some allopathic treatment but few relief only occur. He is also having skin itching with peeling since 4 years.

5. HISTORY OF PREVIOUS ILLNESS

Childhood-chickenpox-traditional-relieved

6. HISTORY OF FAMILY ILLNESS

GMr-Diabetes Mellitus

7. PERSONAL HISTORY

A. LIFE SITUATION

Place of birth: Mangalam

Socio- economic status: Moderate

Nutritional status: Average

Dwelling:Mangalam

Religion:hindu

Educational status :VIITH std

Family status:

Father :Alive Mother:Alive Siblings: 1 Children:_

B. HABITS & HOBBIES

Food: Non Vegetarian

Addictions: nil

Sleep: Good

C. DOMESTIC RELATIONS

With family members -Good

Relatives -Good

Neighbours -Good

Friends -Good

D. SEXUAL RELATIONS

Premarital :

Marital :

Extra marital :

8. LIFE SPACE INVESTIGATION

He is born in a moderate family in mangalam. He has one younger brother**.** Now he is studying in 7th std. He is good in playing games. He had a fear of crowd and aversion to group of people. He become very anxious and have profuse sweating

on palms and coldness in hands. He says that at that time he can't able to write because of sweating.

9. PHYSICAL FEATURES

A. PHYSICALS

I. FUNCTIONAL

1. Appetite : Moderate

2. Thirst : Normal

3. Sleep:Good

II. ELIMINATIONS

1. Stool : Regular
2. Urine :Normal
3. Sweat : Profuse on palms

III . REACTIONS TO

1. Season :Summer
2. Covering : Aversion
3. Desire : Fried food,Spicy
4. Aversion : Bitter, Milk
5. Fanning-Aversion
6. Psition-lying on right side during sleep

IV. CONSTITUTIONAL

Sanguine -Temperament

B. MENTAL GENERAL

Mild

Intelligent

Fear of crowd

Fear of grouped persons

10. PHYSICAL EXAMINATION

A. GENERAL

- Conscious :Conscious
- General appearance :Good
- General built and nutrition : lean & emaciated
- Anaemia:No Pallor
- Jaundice :Not icteric
- Clubbing :Nil
- Cyanosis :nil
- Oedema :Nil
- Lymphadenopathy :Nil
- Height:134 cm
- Weight :24 kg
- BMI:13.4kg/m^2
- Pulse rate: 82/mt Resp rate:18/mt
- Temp: 98.6 ^{o}F

B. SYSTEMIC EXAMINATION

Examination of skin:

Inspection-No scar, No discolourisation, Peeling of skin in hands, Profuse sweat in hands

Palpation-No ternderness, No local warmth, Coldness present in hands and foot.

O/E of CVS-S1,S2 heard in cardiac areas

O/E of respiratory system-NAD

Mid arm circumference-20 cm

Chest circumference-59 cm

Head-51 cm

C. REGIONALS

Vision-Normal

Hearing-Normal

Tongue-Clean and moist

Skin-peeling with profuse sweat on palms

11. LABORATORY FINDINGS

Haemoglobin-11.76gm/dl

12. DIAGNOSIS

- Provisional Diagnosis :Under nutrition with dermatitis
- Differential Diagnosis: Psoriasis
  Tinea versicolar
- Final Diagnosis (Disease): Under nutrition with dermatitis

13 .DATA PROCESSING

A. ANALYSIS OF CASE

COMMON	UNCOMMON
Itching and peeling of ski in palms <Scratching <Playing in soil >warm water application	Profuse sweat in palms Coldness of palms <Mental tension <While writing Desire spices Aversion milk

B. EVALUATION OF SYMPTOMS

1.Mild

2.Desire spices

3.Aversion-milk

4.increased sweating in palms

5.Lying on right side

6.Lean constitution

C. MIASMATIC ANALYSIS:

PSORA	SYCOSIS	SYPHILIS
Easily angered Skin peeling with itching <playing in soil >warm water application	Sweat increased in palms	Sweat increased in palms

E. TOTALITY OF SYMPTOMS

1.Easily angered

2.Fear of crowd

3.Intelligent

4.Mild

5 Milk aversion

6.Desire spices

7.Lies on right side

8.Itching and peeling in palms

9.Coldness of both palms.

10. Itching in palms< playing in soils

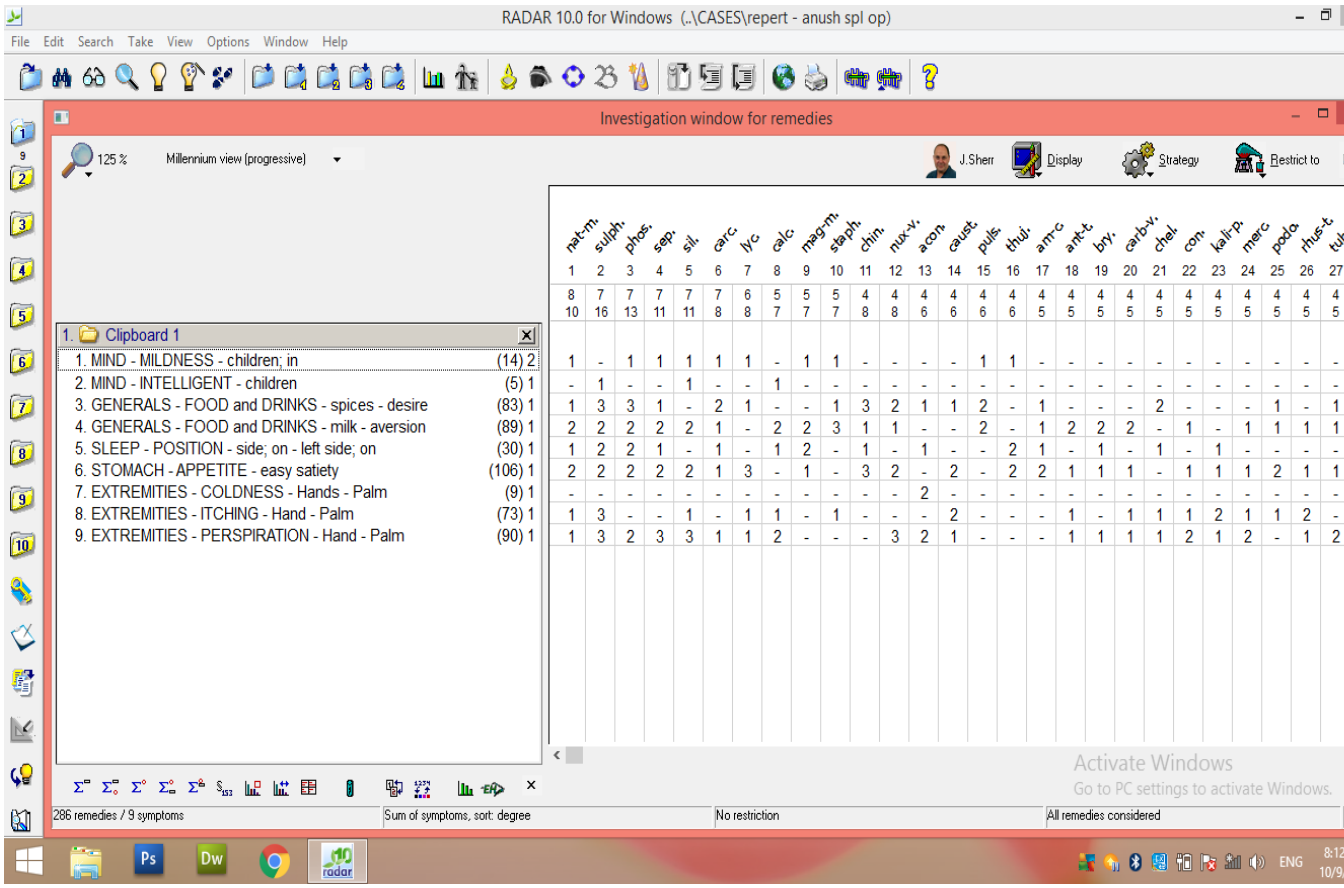
11.Itching in palms> warm water application

F. HOMOEOPATHIC DIAGNOSIS

Chronic Miasmatic Disease- Psora

14.SELECTION OF MEDICINE

Repertorial Approach



15 SELECTION OF POTENCY AND DOSE

A. Potency - According to susceptibility 200 potency selected.

B. Dose-According to homoeopathic principle 1 dose selected**.**

16. PRESCRIPTION

1.SILICEA 200- 1 D0SE

2.SG 3-3-3

3.SD 1-0-1

2wks

17.GENERAL MANAGEMENT INCLUDING AUXILLARY MEASURES

A. General/Surgical/Accessory:

1.Maintain Proper hygiene

2.Adviced to take nutritious diet.

3.Adviced to avoid outside food

B. Restrictions (Diet, Regimen etc.):

Avoid coffee and other stimulents.

18. PROGRESS & FOLLOW UP

1-10-18	Itching in palms slightly better Appetite improved Wt-24kg		SILICEA 200- 1 DOSE SG 3-3-3 SD1-0-1 2wks
26-11-18	Ht-134cm Complaints better than before		RPT IN SL
24-12-18	Itching feels better Sweating in palms better than before Weight-24.9 kg Height-135.2 cm		SILICEA 0/3 -1 DOSE SG 3-3-3 SD1-0-1
21-1-19	Complaints feels better Appetite improved Wt-25.9kg Ht-136cm		SILICEA 0/6-1 DOSE SG 3-3-3 SD 1-0-1
22-2-19	Itching in palm slightly persist Appetite-Good		Sl-1 DOSE

23-3-19	Wt-30kg Ht-136.2 cm	Complaint feels better	Sl-1 DOSE

SARADA KRISHNA
HOMOEOPATHIC MEDICAL COLLEGE HOSPITAL

GROWTH CHART

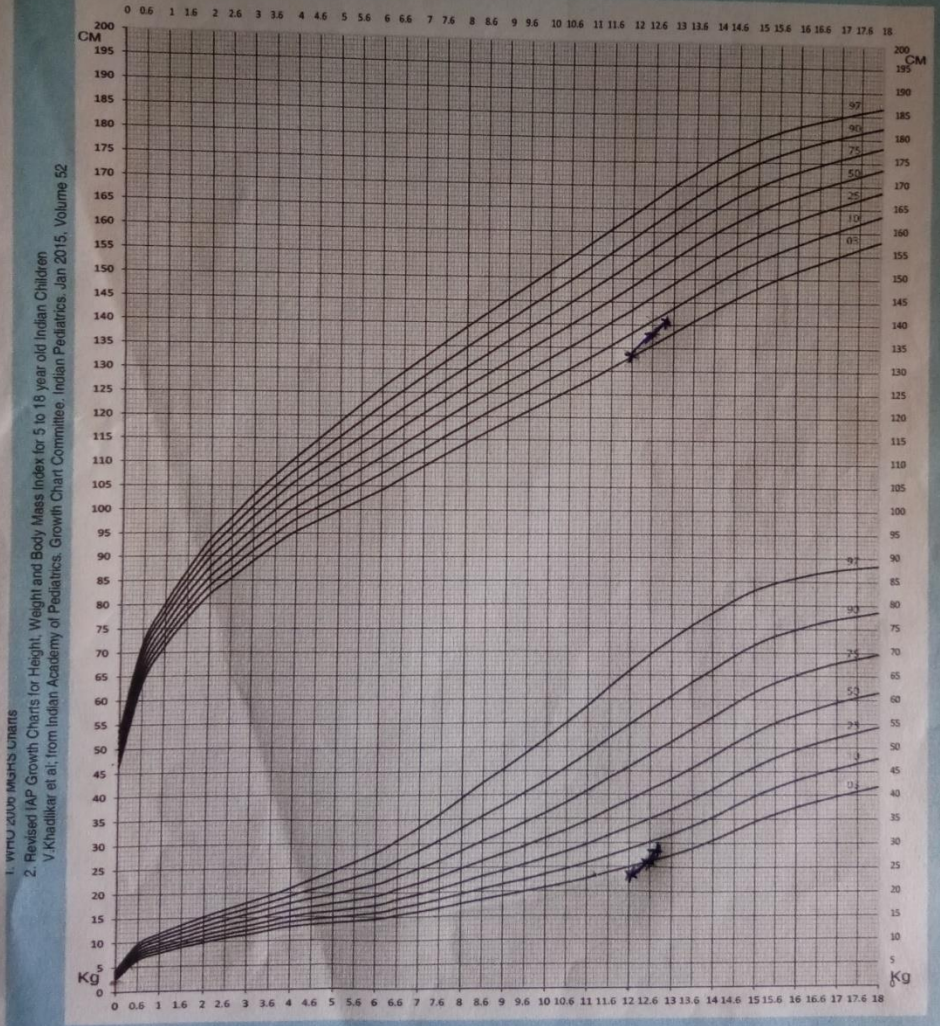
12yrs.

0 to 18 Years: Boys

WHO 2006 & IAP 2015 Combined Height & Weight Charts

NAME Master Anush

DOB 12 years/male



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APPENDIX IV

MASTER CHART

SL No	Op no	Age /sex	Probable cause	Birth Weight	Past history	Nutritional intake	Prescription		Intercurrent used	Growth Percentile for weight before		Growth Percentile for height before		Growth Percentile for weight after		Growth percentile for height after		Improvement of associated complaints
							Constitution medicine	Potency		range	Mid point -	Range	mid point	range	Mid point	range	Mid point	
1	5553/13	10/M/C	R/A of rhinitis	Birth weight 2.5 kg	R/A of rhinitis	Average	Lycopodium	200	Nil	0-3	1.5	0-3	1.5	3-10	6.5	3-10	6.5	Severe
2	3461/12	7/M/C	Nil	Birth weight 2.5 kg	Nil	Average	Lycopodium	200	Tuberculinum	3-10	6.5	25-50	37.5	10-25	17.5	25-50	37.5	Nil
3	1286 9/16	5/M/C	Low birth weight	Low birth weight 2.4kg	mumps	Average	Calcarea Phos	200	Tuberculinum 1M	3-10	6.5	25-50	37.5	10-25	17.5	25-50	37.5	Nil
4	9226/	3/M/C	R/A of	Birth weigh	R/A of	Average	Silicea	0/6	Nil	3-10	6.5	25-50	37.5	10-25	17.5	50-75	37.5	Moderate

	16		vomiting	t 2.5 kg	vomiting													
5	1873/18	8/M/C	Nil	Birth weight 2.5 kg	Nil	Average	Silicea	30	Tuberculinum 1M	10-25	17.5	75-90	82.5	25-50	37.5	90-97	93.5	Nil
6	7548/17	16/M/C	R/A of cough	Birth weight-2.5kg	R/A of cough	Average	Phosphorus	200	Tuberculinum 1M	10-25	17.5	50-75	62.5	25-50	37.5	50-75	62.5	Mild
7	7242/16	5/M/C	Nil	Birth weight-2.45kg	measles	Average	Lycopodium	200	Tuberculinum 200	3-10	6.5	3-10	17.5	10-25	17.5	3-10	17.5	Nil
8	3771/13	14/M/C	Nil	Birth weight 2.5 kg	Nil	Average	Lycopodium	30	Nil	3-10	6.5	25-50	37.5	10-25	17.5	25-50	37.5	Nil
9	2332(R)	12/M/C	Nil	Birth Weight -2.5 Kg	Nil	Average	Calcarea carb	1M	Nil	3-10	6.5	3-10	6.5	10-25	17.5	10-25	17.5	Nil
10	9772/9	10/F/C	Nil	Birth weight 2.7 kg	Chicken pox	Average	Calcarea phos	1M	Nil	3-10	6.5	25-50	37.5	10-25	17.5	25-50	37.5	Nil
11	4784/16	6/M/C	R/A of rhini	Birth weight 3.5	Measles, R/A	Average	Lachesis	200	Nill	0-3	1.5	10-25	17.5	3-10	6.5	10-25	17.5	Severe

			tis	kg	of rhinitis													
12	6155/18	4/F/C	R/A of URTI	Birth weight 2.5 kg	R/A of URTI	Average	Lycopodium	30	Nil	3-10	6.5	25-50	37.5	10-25	17.5	25-50	37.5	Moderate
13	2546(R)	15/F/C	Low birth weight	Birth weight 2 kg	Nil	Average	Silicea	200	Nil	0-3	1.5	0-3	1.5	3-10	6.5	10-25	17.5	Nil
14	7578/14	8/F/C	H/O Pneumonia	Birth weight 2.6 kg	Pneumonia,Preterm baby, delayed milestone	Average	Silecea	200	Nil	0-3	1.5	25-50	37.5	3-10	6.5	25-50	37.5	Nil
15	1881/18	4/F/C	Dysentry	Birth weight -3 Kg	R/A of URTI, Late child after 5years of marriage,P	Good	Lycopodium	30	Nil	3-10	6.5	25-50	37.5	10-25	17.5	25-50	37.5	Severe

					remature Delivery													
16	9666/17	7/M/C	Asthma	Birth weight 2.5 kg	Measles,Typhoid	Good	Lycopodium	30	Tuberculinum 200	3-10	6.5	10-25	17.5	10-25	17.5	10-25	17.5	Moderate
17	317/18	11/M/C	R/A of URTI	Birth weight 2.5kg	Chicken pox, R/A of URTI	Average	Calcarea carb	30	Tuberculinum 200	10-25	17.5	3-10	6.5	25-50	37.5	25-50	37.5	Severe
18	3957/18	5/M/C	R/A of cough	Birth weight-2.9 Kg	R/A of cough	Average	Silicea	200	Nil	10-25	17.5	10-25	17.5	10-25	17.5	10-25	17.5	Moderate
19	2944/18	11/M/C	Dengue fever	Birth weight-2.5kg	Dengue fever	Average	Calcarea Carb	200	Nil	10-25	17.5	10-25	17.5	25-50	37.5	25-50	37.5	Nil
20	6154/18	7/F/C	Nil	Birth weight 2.5kg	Nil	Good	Lycopodium	30	Tuberculinum 200	3-10	6.5	10-25	17.5	10-25	17.5	10-25	17.5	Nil
21	2473(R)	11/M/C	R/A of Gastritis	Birth weight 2 kg	Low birth weight,ga	Average	Calcarea Ph	200	Nil	3-10	6.5	3-10	6.5	3-10	6.5	25-50	37.5	Moderate

					stritis		os											
22	8514/14	8/F/C	R/A of cold	Birth weight 2.5 kg	R/A of cold	Average	Calcarea Carb	30	Tuberculinum 1M	0-3	1.5	3-10	6.5	3-10	6.5	3-10	6.5	Severe
23	1130 5/8	15/F/C	R/A of cough	Birth weight 2.5	R/A of cough	Average	Pulsatilla	200	Nil	3-10	6.5	3-10	6.5	10-25	17.5	10-25	17.5	Severe
24	1438 6/13	4/F/C	R/A of rhinitis	Birth weight 2.5 kg	R/A of rhinitis	Average	Silicea	200	Tuberculinum 200	0-3	1.5	0-3	1.5	3-10	6.5	3-10	6.5	Moderate
25	3982/13	12/F/C	R/A of fever	Birth weight 2.5 kg	R/A of fever	Average	Natrum Mur	0/6	Tuberculinum 1M	3-10	6.5	25-50	37.5	10-25	17.5	25-50	37.5	Moderate
26	7000/18	12/M/C	Nil	Birth weight-2.5kg	Chicken pox	Average	Silicea	200	Nil	0-3	1.5	3-10	6.5	3-10	6.5	3-10	6.5	Nil
27	8812/15	6/M/C	Nil	Birth weight 3.7 kg	Chicken pox	Average	Calcarea carb	200	Tuberculinum 200	0-3	1.5	0-3	1.5	3-10	6.5	3-10	6.5	Nil
28	2303(R)	7/M/C	Nil	Birth weight-2.5	Nil	Good	Calcarea	200	Nil	0-3	1.5	3-10	6.5	3-10	6.5	25-50	37.5	Nil

				kg			Carb											
29	9666/17	7/M/C	Nil	Birth weight 2.5	Nil	Average	Lycopodium	30	Nil	3-10	6.5	10-25	17.5	10-25	17.5	10-25	17.5	Nil
30	3095/15	4/M/C	R/A of gastritis	Birth weight 3.25 kg	R/A of gastritis	Good	Lycopodium	200	Nil	0-3	1.5	0-3	1.5	3-10	6.5	3-10	6.5	Moderate

APPENDIX V

CONSENT FORM (A)

INFORMATION FOR PARTICIPANTS OF THE STUDY

Title of my study is "Effectiveness of homoeopathic constitutional medicine in improving the growth standards in children with reference to WHO and IAP paediatric growth chart". The purpose is to study the effectiveness of homoeopathic constitutional medicine in improving the growth standards in children.

The procedure includes selection of 30 cases diagnosed with poor growth standard visiting the OPD, IPD and Rural centers of Sarada Krishna Homoeopathic Medical College will be taken.The patients are counseled, screened and are brought to the Sarada Krishna Homoeopathic Medical College Hospital for carrying out the study. Data will be collected according to pre structured SKHMC format. The prescription is based on the growth analysis using the growth chart. The remedy may be repeated, changed its potency or remedy whenever needed. Pre and post treatment analysis and comparison will be done using growth chart. Case taking along with the physical examination will be done. Cases will be followed up and assessment will be done. The improvement will be assessed in 3 months to 6 months of research study. The duration of the study is July 2017 – January 2019.

The benefits to the subject or others ,reasonably expected for the research are:The participant who takes part in this study are contributing towards the management of children who comes under poor growth standards, a treatment which they can attain by without any adverse effect.For the treatment best selected Homoeopathic medicines will be given. So there will not be any adverse effect or risk because of the study.I will not disclose identity of the research participants at any time, during or after the study period or during publication. Securely store data documents in locked locations and Encrypt identifiable computerized data. All information revealed by you will be kept as strictly confidential.Your participation in the study is voluntary and you are free to refuse treatment or withdraw from the study at any time if you are not satisfied.

INVESTIGATOR:

Dr. Chinchu G .S

P.G. Scholar,

Department of Paediatrics,

Sarada Krishna homoeopathic medical college and hospital,

Kulasekharam,

Mobile no: 8089532614

GUIDE:

Dr. C.K.Mohan**,**

Professor,

Department of Paediatrics,

Sarada Krishna Homoeopathic Medical College,

Kulasekharam,

mobile no:9443379448

FORM - 4 : CONSENT FORM (B)

Participant consent form

Informed Consent form to participate in a clinical trial

Study Title: "Effectiveness of homoeopathic constitutional medicine in improving the growth standards in children with reference to WHO and IAP Paediatric growth chart"
Study Number:
Subject's Initials: **Subject's Name:**
Date of birth/Age:

Please initial Box

(Subject)

i. I confirm that I have read and understood the information sheet dated July 2017 for the above study and have had the opportunity to ask question. [ ]

ii. I understood that my participation in the study is voluntary and that I am free to withdraw at any time without giving any reason. Without my medical care or legal rights being affected. [ ]

iii. I understand that the sponsor of the clinical trial,others working on the sponsor's behalf the Ethics Committee and the regulatory authorities will not need my permissionto look at my health records both in respect of the current study and any further research that may be conducted in relation to it, even if I withdraw from the trial. I agree to this access. However, I understand that my identity will not be revealed in any information released to third parties or published. [ ]

iv. I agree not to restrict the use of any data or result that arise from this study provided such a use only for scientific purpose(s) [ ]

v. I agree to take part in the above study.

Signature (or Thumb impression of the subject/legally acceptable Representative:_____

Date _____/_____/_____

Signatory's Name: _____

Signature of the Investigator: _____

Study Investigator's Name: Dr Chinchu G S

Signature of the Witness_____ Date: _____/_____/_____

Signature of the Witness _____Date _____/_____/_____